U.PORTO
FACULDADE DE LETRAS
UNIVERSIDADE DO PORTO

Tatiana Mereniuc

Master in Tourism

Nature-based Tourism – An Opportunity to Increase Sustainable Development in Moldova

2015

Coordinator: Dr. Ana Maria Rodrigues Monteiro Sousa

Acknowledgements

I would like to express my gratitude to all persons that contributed directly and indirectly to the successful accomplishment of the present research.

First of all, I would like to express my profound respect to my coordinator, Dr. Ana Maria Rodrigues Monteiro Sousa and to thank her for the major investment in my academic formation, but most of all for the unconditional help, support, guidance and motivation provided throughout the entire process of the development of my research. The received advices and the constructive criticism had a decisive impact on the final result of my project.

In the same context, I would like to thank the entire academic staff from the Faculty of Arts of the University of Porto and to address special thanks to the Director of the Master in Tourism course, Dr. Luis Paulo Saldanha Martins.

The support provided by the representatives of the International Office of the Faculty of Arts helped me a lot in overcoming different issues arisen during the whole period of my professional formation.

I would also like to express my unlimited love and gratitude to my family from Moldova, my mom, my elder brother and my grandparents, who despite the distance between us have always supported me, believed in my abilities and encouraged me in every initiative.

My warmest thanks are addressed to my husband, Andrei, who accompanied me during the whole process of thesis elaboration and provided constant help and care. It is a blessing to have him close in both cheerful and sad moments and to be sure that he is the person that believes in me unconditionally.

And finally, I can’t not mention the plenty of friends from all over the world, I have made during my stay in Porto. Our mutual support was of special value in the context of the cultural melting pot we are living in.

Abstract

The main objective of the present thesis was to explore the potential of the nature-based tourism in Moldova and to highlight the manner it can contribute to the sustainable development of the country and the benefits it can generate. In this context, the research inspected the general evolution of tourism sector in Moldova and the attractiveness of its natural heritage, jeopardized by the environmental issues. Nature-based tourism, considered the most rapidly developing form of tourism represents a viable tool in the process of sustainability achievement, especially for the developing countries, as it can generate economic, social and environmental benefits. The vast potential of Moldova's natural tourism, expressed by its biodiversity, various ecosystems, numerous natural protected areas, unique picturesque landscapes, flavored with the renowned hospitality of people, represents an outstanding value and opportunity for its adequate exploitation. The need to incentivize the development of the nature-based tourism becomes even more evident in the context of environmental challenges Moldova is facing: biodiversity loss, pollution of atmospheric air, vulnerability to climate change, vulnerability to water scarcity, exposure to such natural hazards as earthquakes, landslides, floods, droughts and strong blizzards, the antrophogenic factor being the main culprit of these events. In this context, arises the need of a multidimensional cooperation between all major stakeholders, including Governments (central, regional and local), private sector, civil society and host communities. The private sector, as the main contributor to the GDP should be ensured with favorable conditions for the unfolding of their businesses, but only in the framework of sustainability. Thus, the adoption of Corporate Social Responsibility will represent the guarantee that the companies are obtaining profit and in the same time are contributing to the economic, social and environmental sustainability of the whole country. The so much needed social cohesion will be developed as result of the improvement of the sense of identity and pride, generated by the preservation and perpetuation of traditions. A more intense and specific target market oriented promotion policy is suggested for the increase of awareness towards Moldova as an ecotourism destination.

Key-words: Nature-based Tourism, Sustainable Development, Natural Resources, Environmental Challenges, Cooperation.

List of abbreviations and acronyms

ADTM – Asociaţia de Dezvoltare a Turismului în Moldova (Association of Tourism Development in Moldova)
AGMR – Agency for Geology and Mineral Resources
ANTREC – Asociaţia Nationala de Turism Rural, Ecologic si Cultural din Moldova (National Association of Rural, Ecological and Cultural Tourism in Moldova)
ANTRIM –Asociaţia Națională pentru Turism Receptor din Moldova (National Association for Inbound Tourism in Moldova)
ARE - Swiss Federal Office for Spatial Development
ATRM – Agentia Turismului a Republicii Moldova (Tourism Agency of the Republic of Moldova)
bn. – Billion
CCAS – Climate Change Adaptation Stratgy
CIS – Commonwealth of Independent States
CSD – United Nations Comission on Sustainable Development
CSR – Corporate Social Responsibility
EU – European Union
FPTM – Federatia de Promovare a Turismului din Moldova (Federation for the Promotion of Tourism from Moldova)
GDP – Gross Domestic Product
GNP – Gross National Product
GUAM – Organization for Democracy and Economic Development
IT – Information Technology
IUCN – International Union for Conservation of Nature
LEDS – Low Emission Development Strategy
MDGs – Millennium Development Goals
MDL – Moldovan Leu (currency)
ME – Ministry of Environment
NAMA – National Appropriate Mitigation Actions
NBS – National Bureau of Statistics
NGOs – Non-Governmental Organizations

SAEFL - Swiss Agency for the Environment, Forests and Landscape

SD – sustainable development

SEI – State Ecological Inspection

SFSO - Swiss Federal Statistical Office

SHS – State Hydrometeorological Service

SWOT – Strengths, Weaknesses, Opportunities, Threats

TBL – Triple Bottom Line

T&T – Travel and Tourism

UN – United Nations UNCED – United Nations Conference on Environment and Development

UNDP – United Nations Development Programme

UNDSD – United Nations Division for Sustainable Development

UNESCO - United Nations Educational, Scientific and Cultural Organization

WCED – World Commission on Environment and Development

WSSD – World Summit on Sustainable Development

WTTC – World Travel and Tourism Council

Table of Contents

List of Tables

List of Figures

Chapter I: Introducing the issues

"There is nothing in which the birds differ more from man than the way in which they can build and yet live a landscape as it was before"

Robert Lynd, The Blue Lion and Other Essays, 1968

1.1. Actuality of the topic

Nowadays, in the context of the numerous challenges regarding environmental protection, the sustainability concept is gaining ground, increasing the awareness towards the need to align with the harmless practices, in order to defend the right of future generations to enjoy Earth's resources.

Tourism industry being one of the fastest growing economic sectors in the world and a key actor in the process of overall development is obviously facing the reality that requires its adaptation to the paradigm, where the economic and social growth are strongly correlated with the minimization of negative social and environmental impacts. In this context, the tourism industry is forced to incorporate several dimensions of sustainable development – economic viability, local prosperity, employment quality, social equity, visitor fulfillment, local control, community wellbeing, cultural richness, physical integrity, biological diversity, resource efficiency and environmental purity (UNWTO, 2013a: 18).

The UN General Assembly has recognized ecotourism as "a key in the fight against poverty, the protection of the environment and the promotion of sustainable development", highlighting its positive impacts on economy, society and biodiversity that can be achieved through the cooperation of all stakeholders, as it generates benefits for every involved entity (UNWTO, 2013b).

The great potential of tourism to contribute to the achievement of positive results especially by the developing countries is also underlined by Mr. Taleb Rifai, the Secretary General of the World Tourism Organization, while stating that travel and tourism represents a powerful tool of the developing economies and serves as a comparative advantage in relation with the developed countries, since its resources are hardly under-evaluated and underutilized (Worldfolio, 2015).

Republic of Moldova is a very young country, as it achieved it's independence less than 25 years ago, emerging from the Soviet centralized economic system. It is still experiencing the transitional process burdened by the obsolete mentality and extreme corruption.

Despite this fact, Moldova is slowly, but firmly entering the recovery period and its orientation towards European Union integration is already generating multiple positive shifts, comprising the economic, social and environmental dimensions.

In this context, Moldova has responded affirmatively to the encouragement to integrate tourism industry in the priority group of economy sectors and to consider it as a promoter of sustainable development of the country.

However, the capacity of nature-based tourism as a main contributor to sustainability is strongly underestimated, especially in the context when natural resources are the main attraction of the country and their valorization can solve numerous faced economic, social and environmental issues.

In this way, my major motivation while choosing to analyze the opportunities of nature-based tourism to contribute to the sustainable development of the country emerged from the low attention paid by the state and other stakeholders to the great value of natural resources and their ability to contribute to the increase of the awareness towards Moldova as an ecotourism destination, and as result to contribute to the economic and social development of the host communities and of the whole country. The environmental dimension appears to benefit the most, as there is a direct relationship between the state of natural resources and their attraction abilities – the more various and preserved they are – the greater will be their value as tourist attractions.

My second motivator was more personal, as I pursued the intention to present my country, by highlighting its main values, expressed in the amount of unique landscapes and renowned hospitality of Moldavian people, hoping that my minor contribution to the spread of information regarding the treasures possessed by Republic of Moldova will contribute as little to the increase of awareness towards it.

1.2. Objectives

The aim of the study consists in the elucidation of the opportunities and benefits that nature-based tourism can provide for the sustainable development of Republic of Moldova, deriving from the main research question:

- Can nature-based tourism contribute to the sustainable development of Moldova?

In order to reach the main objective, a set of additional specific objectives was developed:

- To explore the concepts of sustainable development and nature-based tourism and to establish the relation between them;
- To provide an overview of the tourism development in Moldova, in order to emphasize it's position on the international market;
- To explore the natural tourism potential of Republic of Moldova by describing its vast amount of natural resources;
- To present the successful practices of natural tourism potential valorization;
- To highlight the main issues the environment is facing;
- To point out the benefits that Moldova can achieve by valorizing the tourist potential of its natural resources, and finally
- To show the importance of a collective implication for the process of an overall sustainable development achievement.

The last two objectives serve as a source to find out and clot some possible directions and measures required for the achievement of the sustainable development.

1.3. Methodology

In order to achieve the main objective of the research, consisting in the elucidation of the opportunities and benefits that nature-based tourism can provide for the sustainable development of Republic of Moldova, the compilation and further analysis of all collected data related to the subject was conducted.

The thorough analysis of the theoretical material regarding the concepts of sustainable development and nature-based tourism, allowed not just to select the most comprehensive

definitions of the terms but also to provide own versions, and further permitted to identify the context of their emergence, their main characteristics and to determine the interrelation of the two terms.

Important steps referred to the analysis and selection of the sustainable development measurement approaches, since there exists a multitude of methods appeared in the recent times. In this context emerged the awareness regarding the harsh need of their harmonization, in order to avoid the issues related to the process of establishing the set of indicators of sustainable development. As the most significant and relevant composite indices were listed: Environmental Performance Index (EPI), the Living Planet Index (LPI), the Ecological Footprint, the Water Footprint and the Happy Planet Index and further the position of Republic of Moldova within the indices was assessed.

While exploring the conceptual similarities and distinctions between the concepts of nature-based tourism and ecotourism, was taken the relevant decision to consider the terms being interchangeable and to use both of them while referring to the same concept of natural tourism. The decision is motivated by the fact that under the challenges of sustainability, all forms of tourism have to be reoriented towards harmless practices, even more the elements of the broader natural tourism form.

The analysis of the studies referring to the positive and negative impacts of nature-based tourism on sustainable development was relevant for the identification of its influences on the development of Republic of Moldova (analysis realized in the last chapter).

In order to present the study area and to make an overview of the tourism development in Moldova, data provided by the National Bureau of Statistics, World Economic Forum and World Travel and Tourism Council were used. When analyzing the institutional framework of the tourism industry, the activity of the Agency of Tourism of Republic of Moldova and the activity of other important Non-Governmental organizations implied in the process of tourism development was explored. The provided SWOT analysis of the Moldavian tourist sector is offering a wider perception of the actual state of the tourism industry in Moldova.

The presentation of the natural tourism potential of Republic of Moldova, including species, ecosystems and natural protected areas was based on the data collected from the sources provided by the Ministry of Environment of Republic of Moldova, Institute of Ecology and Geography, Moldsilva Agency (the central administrative authority in forestry), National Bureau of Statistics, etc. The information regarding the enormous heritage of the Natural-

cultural Reserve “Old Orhei” was gathered and compiled from the numerous monographs, scientific articles, scientific reports and popular papers written by Doctor Habilitate Gheorghe Postică – Moldavian archeologist and medievalist historian.

The identification of the vulnerability of natural resources, of the factors that are influencing the degradation of biodiversity and of the consequences of environmental challenges was crucial in the process of the research development. In this context, with an increased attention was selected a set of documents and reports, elaborated by both national and international authorities, in order to show a veridical image of the state of environment in Republic of Moldova and basing on the data, to develop further several recommendations for the overcoming of the situation. The analyzed documents comprise the most recent annual Reports of the State Hydrometeorological Service regarding the state of waters quality, state of soils and state of atmospheric air. The United Nations 2014 Report on the Environmental Performance of Republic of Moldova served as an independent and objective source for data collection.

Finally, the analysis of the recently elaborated and adopted Strategies by the Ministry of Environment regarding the Climate Change Adaptation, Biodiversity Conservation, Low Emissions Development and the Strategy of Agency of Tourism of Republic of Moldova regarding Tourism Development, served to the understanding of the direction of development chosen by the Government, and for the identification of measures that were proposed for the achievement of sustainability and to provide own suggestions.

The held conversations with Rodica Baicu – senior consultant of External Relations, European Integration and Protocol Service of the Agency of Tourism of Republic of Moldova contributed to the perceiving of the advantageous condition of Republic of Moldova in the context of its European orientation, taking into consideration the numerous opportunities for the development of tourism and financial support offered by the EU.

1.4. Research limitations

The broad secondary data analysis collected from a wide range of sources, permitted to conduct the research and answer to the main question of the paper, without collecting and using primary data.

Nevertheless, a further research, with the implication of quantitative and qualitative methods would be of great relevance for the identification of the profile of ecotourists visiting Republic of Moldova and for the delimitation of the stakeholders involved in the process of sustainable tourism development. The disclosure of problems they are facing would contribute considerably to the establishment of a trustful relationship between the public and private sector, without diminishing the decisive role of the civil society and local communities.

Furthermore, the planned activities for the further promotion of the National Park "Orhei" will attract increased attention towards Moldova as a tourist destination and will offer the possibility to explore deeper the deficiencies faced by the tourism sector, analyzing the satisfaction level of tourists that will visit the location.

1.5. Structure

The present study is divided into four chapters, comprising a general introduction plus conclusions.

The introduction is dedicated to the emphasizing of the topic actuality, followed by the objectives of the research, methodology, limitations and structure of the study.

The second chapter is divided into three major subsections, comprising theoretical approaches towards the definitions, characteristics and evolution of sustainable development and nature-based tourism concepts, followed by the identification of the interrelation between nature-based tourism and sustainable development.

The third chapter comprises a broad overview of the tourism sector development in Republic of Moldova and ends with a SWOT analysis, aiming to underline the context of its actual evolution.

The fourth chapter is the most complex, as it tackles the analysis of Moldova's natural tourism potential and its valorization. In this context, the chapter is subdivided into 6 sections. The first one is related to the natural tourism potential overview, followed by the presentation of the recently established first National Park "Orhei" and by the description of its core – the Cultural-natural Reserve "Old Orhei". Further is emphasized the actual state of environment of Republic of Moldova and the factors that are contributing to its degradation and to loss of biodiversity. The benefits than can be generated by the nature-based tourism described in the fifth section are finally supported by the last subchapter, where is highlighted the key role of all

stakeholders in the process of sustainability achievement and where the adaptation of Corporate Social Responsibility is presented as a tool to reach sustainable development.

The research ends with conclusions, reaffirming the dissertations statement and providing of several recommendations shaped for the increase of awareness towards Moldova as an ecotourism destination.

Chapter II: Theoretical framework of sustainable development and sustainable tourism concepts

2.1. The emergence and the evolution of sustainable development concept

After the popularization of the sustainable development notion, tracing its origins from the Report "Our Common Future", published by the World Commission on Environment and Development (Brundtland Comission) in 1987, the term has strongly installed in practically every sector of human activity and became topic of discussion for numerous authors.

Resulting from the challenge of facing the future, solving urgent multilateral problems and safeguarding the interest of coming generations, an interdisciplinary, integrated approach to the existing concerns appeared – by elaborating long-term environmental strategies, in order to achieve sustainable development (WCED, 1987).

In this context, the Brundtland Comission defined sustainable development as ""Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987: 43)

It has also highlighted its key concepts, comprising the need to assure the priority for the world's poor, by offering them the required resources for the development, and the idea of environmental limitations, concerning the adoption of life-styles within planet's ecological means by the wealthiest entities (WCED, 1987).

A mix of environmental and developmental concerns is represented in the list of the elements of the sustainable and development ideas of WCED "Our Common Future" Report and comprises:

- Reviving growth;
- Changing the quality of growth;
- Meeting essential needs for jobs, food, energy, water, and sanitation;
- Ensuring a sustainable level of population;
- Conserving and enhancing the resource base: reorienting technology and managing risk;
- Merging environment and economics in decision making (WCED, 1987: 46).

The Brundtland Report served as an incentive for the organization of the United Nations Conference on Environment and Development in Rio de Janeiro, in June 1992, where was adopted the Rio Declaration on Environment and Development and Agenda 21, a comprehensive plan of actions regarding the global commitment for sustainable development. The Agenda comprises 40 chapters structured in 4 major sections relying on Social and economic dimensions, Conservation and management of resources for development, Strengthening the role of major groups and Means of implementation (UNDSD, 1992).

One of the most important principles from the 27 stated in the Rio Declaration on Environment and Development was the concept of differentiated responsibilities of the states, as the most developed countries have a greater impact on environment, because of the technologies and financial resources they possess. In this context, they were charged to contribute 0.7% of their annual GNP to official development assistance and to provide the developing countries with access to technological transfer (UN, 1992).

Since the United Nations in its 2000 Millennium Declaration set the 8 goals for development (eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; global partnerships for development) (Annex 1), in order to improve human condition by 2015, the interconnection between environmental issues and poverty became more evident, and as result, at the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg was modeled the integration of Millennium Development Goals (MGDs) into the sustainable principles and practices. Unfortunately, the effort wasn't appreciated, because of the rise of security issues around terrorism, after September11, 2001(IISD, 2010).

Another issue that contributed to a shift in the sustainable development comprehension was the sharp need to undertake actions, both mitigation and adaptation to climate change threats that gained visibility after the publishing of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IISD, 2010).

Even if the United Nations Conference on Environment and Development, the adopted documents such as Rio Declaration and Agenda 21 and conventions concerning desertification, biodiversity, and climate change did not achieve their major goal, the most important legacy of UNCED was the dissemination of sustainable development concept all over the world and the

initiation of actions towards its implementation, involving the participation of major stakeholders (Mebratu, 1998).

Another important result achieved after the UNCED, was the succession of great number of international conferences on sustainable development, among them - 1997 Earth Summit+5 in New York, the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, serving to review the progress of implemented efforts since the adoption of Rio Declaration and Agenda 21, and the most recent RIO+20 Conference, where was adopted the outcome document "The future we want" (UN, 2012).

The UN Conference on Sustainable Development RIO+20 held in June 2012, in Rio de Janeiro, was focused on two major themes: a green economy in the context of sustainable development and poverty eradication; and the institutional framework for sustainable development, in order to achieve the main objectives:

- To renew the political commitment, by reinvigorating it and thus, accelerating the implementation of sustainable development goals, including the MDGs;
- To asses the progress to date and the remaining gaps in the implementation of the outcomes of the major summits on SD and addressing new and emerging challenges;
- To engage major groups and other stakeholders in the promotion of sustainable development, acknowledging the important role of every individual (UN, 2012).

In the context of increasing attention to issues regarding sustainable development, over years, different authors with different perspectives come up with various definitions of the concerned concept.

In the 1991 Strategy for Sustainable Living "Caring for the Earth", SD is defined as "Improving the quality of life while living within the carrying capacity of ecosystems" (IUCN (The World Conservation Union), 1991: 10).

The principles supporting the idea of adoption of lifestyle and development paths taking into consideration nature's limits comprise:

- Respect and care for the community of life;
- Improve the quality of human life;
- Conserve the Earth's vitality and diversity;
- Minimize the depletion of non-renewable resources;
- Keep within the Earth's carrying capacity;

- Change personal attitudes and practices;
- Enable communities to care for their own environments;
- Provide a national framework for integrating development and conservation;
- Create a global alliance (IUCN, 1991).

The environmental consultant John Elkington (1998: 20) gave the following definition of SD: “The principle of ensuring that our actions today do not limit the range of economic, social, and environmental options open to future generations.”

Reinterpreting the Brundtland definition, the Swiss Federal Statistical Office (SFSO), the Swiss Agency for the Environment, Forests and Landscape (SAEFL) and the Swiss Federal Office for Spatial Development (ARE), under the MONET (Monitoring of Sustainable Development) Project (2004: 14-15), proposed the following definition of SD: “Sustainable development means ensuring dignified living conditions with regard to human rights by creating and maintaining the widest possible range of options for freely defining life plans. The principle of fairness among and between present and future generations should be taken into account in the use of environmental, economic and social resources. Putting these needs into practice entails comprehensive protection of biodiversity in terms of ecosystem, species and genetic diversity, all of which are the vital foundations of life”.

Sustainable development may also be defined as “Maintaining a balance between the human need to improve lifestyles and feeling of well-being on one hand, and preserving natural resources and ecosystems, on which we and future generations depend” (CEE (Centre for Environment Education), 2007: 9).

Alan AtKisson (2014), an international consultant on sustainability, working more than 20 years in the field and helping to develop, initiate and lead numerous sustainability initiatives, is defining the concept as “Sustainable development is about changing systems … for the better.”

Robert Prescott Allen (2001: 5), another famous consultant on sustainability, and founder of several influential IUCN –The World Conservation Union projects, in his book “The wellbeing of nations” defined SD as: “A combination of human wellbeing and ecosystem wellbeing”. In this context, Human wellbeing is “a condition in which all members of society are able to determine and meet their needs and have a large range of choices to meet their potential” and ecosystem Wellbeing is “a condition in which the ecosystem maintains its

diversity and quality – and thus its capacity to support people and the rest of life – and its potential to adapt to change and provide a wide range of choices and opportunities for the future".

Hawkes J. (2001: 11) referring to the SD concept defines it as: "A desire that future generations inherit a world at least as bountiful as the one we inhabit."

The environment-sustainability correlation is also strongly noted in the SD definition given by Moran et al. (2007: 470): "Sustainable development represents a commitment to advancing human well-being, with the added constraint that this development needs to take place within the ecological limits of the biosphere."

Mitlin (1992) emphasizes the meaning of development and the conditions for sustainability as the main elements of the sustainable development. The author also provided a wide analysis of sustainable development approaches, including the means to achieve it, especially pointing on the relationship between sustainable development and economic growth, considering the importance of the decision-making process.

Swarbrooke (1999), highlighting the importance of environment, people and economic systems for sustainable development, reminds us that sustainable principles were incorporated in the basis of traditional agricultural systems that were inhibited with the expansion of industrialization and urbanization processes. The concept of sustainable development returned in force when numerous companies started to realize that their business future is directly dependent on the environmental resources they use and begun to introduce sustainable practices, such as measures towards energy conservation, pollution and waste reduction measures and offering an increased attention to the process of staff recruitment and training (Swarbrooke, 1999).

Redclift (2006) argues that nowadays the sustainable development has to be reoriented towards actual realities, by reviewing the discourses regarding sustainability and as result reshape it in accordance with the new materialities.

Even if initially the sustainable development was designed as a solution for the ecological crisis determined by the intense exploitation of industrial resources and a continuous environmental degradation, nowadays the concept targets not only the environmental issues, but also issues of economic growth and societal well-being (Rebega, 2011; Cantor, 2011;).

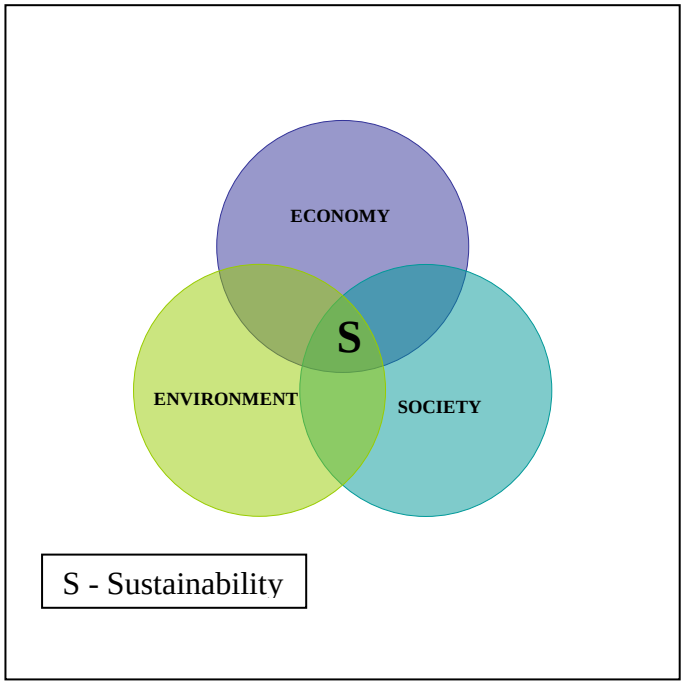
In my opinion, sustainable development is organizing our comfortable day-by-day living, keeping in mind that all we use for it – are Planet's resources and their irrational use will compromise not only its capacity, but also the existence of our followers.

In this context, over years, the sustainable development concept turned into a widely accepted and useful asset, adapted to the interests of all interested stakeholders – international organizations, governments, NGO's, private sector and civil society.

2.1.1. Pillars of sustainable development

When describing the main components of sustainability and highlighting the essence of its integrative concept, the majority of authors, refer mainly to the Triple Bottom Line (TBL) (Figure 1), coined by John Elkington in 1994, which comprises Economy, Environment and Society, and in this context, the essential problem appears to be the difficulty to design and implement these factors into an integrated sustainability-based assessment (Hansmann et al., 2012; Wilkins, 2008; Gibson, 2006).

Figure 1: Triple Bottom Line



Source: Adapted from Elkington, 1994

The neglecting of the interdependence of social, economic and ecological factors can be fatal in the process of sustainability assessment, as only the integrated attention to these three

pillars can provide tangible gains in all concerned fields and for all stakeholders, reaching the ultimate goal of a better future (Gibson, 2006).

While underscoring the importance of a strengthened institutional framework for sustainable development, UN within 2012 "The future we want" document, emphasizes the need of a balanced integration of the three dimensions of SD, increasing effectiveness and transparency and reinforcing coordination and cooperation (UN, 2012).

In order to overpass the main barriers to an effective integration of the sustainability pillars, Gibson (2006: 260) elaborated and provided a Package of Assessment Components for Integration, comprising the following broad features:

- Build sustainability assessment into a larger overall governance regime that is designed to respect interconnections among issues, objectives, actions and effects, though the full interrelated set of activities from broad agenda setting to results monitoring and response.
- Design assessment process with an iterative conception-to-resurrection agenda, aiming to maximize multiple reinforcing net benefits through selection, design and adaptive implementation of the most desirable option for every significant strategic or project level undertaking.
- Redefine the driving objectives and consequent evaluation and decision criteria to avoid the three conventional categories, to ensure attention to usually neglected sustainability requirements, and to focus attention on the achievement of multiple, mutually reinforcing gains.
- Establish explicit basic rules.
- Provide means of combining, specifying and complementing these generic criteria and trade-off rules with attention to case- and context-specific concerns, objectives, priorities and possibilities.
- Provide integrative, sustainability-centered guidance, methods and tools to help meet the key practical demands of assessment work, including identifying key cross-cutting issues and linkages among factors, judging the significance of predicted effects, and weighting overall options and implications.
- Ensure that the decision-making process facilitates public scrutiny and encourages effective public participation.

In the context of the same package, were provided basic sustainability assessment trade-off rules, concerning maximum net gains, burden of argument on trade-off proponent, avoidance of significant adverse effects, protection of the future, explicit justification and open process. The rules are presented as designed to "to encourage those planning and approving significant undertakings to avoid and minimize any compromises that might damage overall prospects for sustainability" (Gibson, 2006: 271).

The three essential pillars of sustainable development are also reflected in the list of Millennium Development Goals (Annex 1), and this fact serves as an incentive for the immediate implementation of each of the pillars in national development strategies, even if for the implementation of their integration still exists the need for the identification of more quantifiable indicators of progress, is clearly noted the lack of political will and lack of a common vision and commitment of all stakeholders. In this context, an increased attention to new approaches to the integration concept and the facilitation of its application to new global challenges, including the harsh problem of climate change, will contribute to long-term benefits, including the MDGs achievement (Wilkins, 2008).

The occurrence of frequent conflicts in the integration process of the three dimensions of the sustainability can be also attenuated in the process of social and human capital enhancing, by linking it to sustainability education and individual, organizational, and societal sustainability learning (Hansmann et al., 2012).

Latterly, can be noted a growing trend of reevaluation of the Three Pillars Model of sustainable development and an increased interest towards culture as the fourth missing and underestimated component of sustainable development. In this context, the exploring of the cultural dimension of sustainability can generate substantial benefits, both theoretical and practical (Burford et al., 2013; Nurse, 2006; Hawkes, 2001).

Because of the different historical and political contexts under which the global cultures have evaluated, their approaches to sustainable development also differ, and in order to redress the global imbalance in the concerned field, culture arises as the fourth pillar of sustainability, able to promote cultural identities, tangible and intangible heritage, cultural industries, cultural pluralism and geocultures. The importance of inclusion of culture in the sustainable development elements is protuberant mainly for the developing countries, facilitating a more competitive development platform (Nurse, 2006).

The need to consider culture an indispensable pillar of sustainable development is undoubtedly since it is considered as:

- A contributor to economic growth, thanks to the economic spinoffs generated by jobs in the cultural sector, cultural tourism, etc.;
- A builder of social ties (in underprivileged communities, by fostering citizen participation, etc.);
- A means of combating social and cultural exclusion by contributing to the social and professional insertion of citizens;
- A means of contributing to the attractiveness and prestige of a city (Auclair, 2003, quoted by Dallaire et al., 2012: 7-8).

Starting from the idea that sustainable society depends upon a sustainable culture and cultural action is required in order to lay the groundwork for a sustainable future, the creation of a new culture-oriented value system is required (Hawkes, 2001).

The achievement of wellbeing and sustainability is nowadays strongly correlated to the SD pillars integration into a complex public action, supported by a continuous evaluation process and readjustment to actual requirements. Bringing culture into the structure of sustainable development will ensure a more dimensional approach to existing deficiencies in the implementation process and will considerably hasten it.

2.1.2. Sustainable development spectrum

The sustainable development interpretation is balancing between “very week” (traditional resource exploitative) and “very strong” (extreme resource preservationist), and in this context the sustainability range (Table 1) is strongly linked to the compatibility of sustainable development and continuous economic growth (Hunter, 1997).

Table 1: Sustainable development spectrum

Sustainability Position	Defining Characteristics
Very weak	Anthropocentric and utilitarian; growth oriented and resource exploitative; natural resources utilized at economically optimal rates through unfettered free markets operating to satisfy individual consumer choice; infinite substitution possible between natural and human-made capital; continued well-being assured through economic growth and technical innovation.
Weak	Anthropocentric and utilitarian; resource conservationist; growth is managed and modified; concern for distribution of development costs and benefits through intra- and inter-generational equity; rejection of infinite substitution between natural and human-made capital with recognition of some aspects of natural world as critical capital (e.g., ozone layer, some natural ecosystems); human-made plus natural capital constant or rising through time; decoupling of negative environmental impacts from economic growth.
Strong	(Eco)systems perspective; resource preservationist; recognizes primary value of maintaining the functional integrity of ecosystems over and above secondary value through human resource utilization; interests of the collective given more weight than those of the individual consumer; adherence to intra- and inter-generational equity; decoupling important but alongside a belief in a steady-state economy as a consequence of following the constant natural assets rule; zero economic and human population growth
Very Strong	Bioethical and ecocentric; resource preservationist to the point where utilization of natural resources is minimized; nature's rights or intrinsic value in nature encompassing non-human living organisms and even abiotic elements under a literal interpretation of Gaianism; anti-economic growth and reduced human population.

Source: Hunter, 1997: 853, adapted from Turner et al., 1994

The natural resources appear to be the core element of the sustainable development fulfillment.

2.1.3. Sustainable development measurement

When a country becomes aware of the imminent changes caused by an unconscious exploitation of resources and aligns to the actions of sustainable development, by implementing its own strategies through specific policies and programs, certainly appears the problem of measuring the progress towards it (Moran et al., 2008).

Since the first set of sustainable development indicators was elaborated by the United Nations Commission on Sustainable Development in 1993, numerous national statistical offices and major international organizations, such as the European Union, Eurostat, OECD, UNECE and World Bank became strongly involved in the process of sustainable development measurement, in order to assess the impact of the integrated efforts towards it, and to use the data for the elaboration of new assessment tools (UN, 2014a).

In order to be relevant the SD indicators have to be: user-driven – reflecting the goals seek by the interested stakeholders; policy-relevant – technically and comprehensively interpreted; and highly-aggregated – comprising the right number of indicators necessary for a easy and rapid interpretation (Hammond et al., 1995).

In the context of the emerged multitude of sustainable development measurement approaches, the need for a harmonization process became evident, and various initiatives have been undertaken, including the most recent elaboration of the third set of Indicators of Sustainable Development (ISD) by the UNCSD, shaped to fit in the interests of all involved institutes, even if the process may extend over decades (UN, 2014a).

The integrative character of the sustainable development can be already noted in the list of CSD indicator themes (Table 2).

Table 2: CSD indicator themes

Poverty	Natural hazards	Economic development
Governance	Atmosphere	Global economic partnership
Health	Land	Consumption and production
Education	Oceans, seas and coasts	patterns
Demographics	Freshwater	
	Biodiversity	

Source: UN, 2007

The set of CSD indicators comprise a total of 96 elements, with 50 basic indicators that can be recombined with the 46 left, depending on the countries profiles, needs and opportunities (Annex 2).

Along with the mostly used CSD indicators, among the most well-known composite indices, mainly related to the environmental dimension of the national sustainable development, are:

Environmental Performance Index (EPI) – a joint project between the Yale Center for Environmental Law and Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, in collaboration with the Samuel Family Foundation and the World Economic Forum. The EPI framework comprises two broad policy areas: protection of human health from environmental harm and protection of ecosystems and scores country performance in nine issue areas comprised of 20 indicators (Figure 2). The 2014 EPI includes 178 countries, or 99 % of global population, 98 % of land, and 97 %of global GDP. (Yale Centre for Environmental Law &Policy, 2014).

Figure 2: 2014 EPI framework

Source: Yale Centre for Environmental Law &Policy, 2014

The Living Planet Reports, published every year by the World Wildlife Fund (WWF), in partnerships with numerous organizations, is providing data on the health of the planet and the impact of human activity. The most recent 2014 Living Planet Report, concluded in collaboration with Global Footprint Network, Water Footprint Network and Zoological Society of London comprises 3 main indicators – the Living Planet Index, the Ecological Footprint and the Water Footprint and additional environmental indicators, designed to measure the state of the planet and the humanity demand on it (WWF, 2014).

The Living Planet Index (LPI) measures trends in 10,380 populations over 3,038 vertebrate species (Fishes, amphibians, reptiles, birds and mammals). The data used for the index are time series of either population size, density, abundance or a proxy of abundance, collected from numerous sources. The global LPI is calculated using the LPI-D method (Annex 3).

The Ecological Footprint – measures the amount of biologically productive land and water area (biocapacity) – expressed in global hectares (gha), needed to supply the population demand and to absorb the carbon dioxide emissions it generates. It is not showing directly whether country's rates of consumption are sustainable, but is measuring one key aspect of sustainable development - the extent to which a country's demand for ecological resources is exceeding its bioproductive ability to regenerate those resources in a given year (WWF, 2014: 152).

The Water Footprint, comprising three types of water use - blue, green and grey (Figure 3) shows the volumes of water required to support human lifestyles, especially used to grow food (WWF, 2014: 45).

Figure 3: Water Footprint types of water

Source: WWF, 2014

The Happy Planet Index – using global data on experienced well-being, life expectancy and Ecological Footprint measures the extent to which countries offer long and happy lives to their citizens (NEF, 2012).

$$\text{Happy Planet Index} \approx \frac{\text{Experienced well-being} \times \text{Life expectancy}}{\text{Ecological footprint}}$$

The weak theoretical framework of the International Composite Indices, related to the periodical methodological changes in their measurement systems (EPI, Ecological Footprint) that considerably hinders the process of data collection and comparison, reveal once more the strident and absolutely necessary need for undertaking measures aiming the harmonization of measurement approaches of sustainable development.

2.2. Sustainable development and sustainable tourism – principles and challenges

Nowadays tourism penetrated in practically every country's development strategies, since the World Tourism Organization (1980: 1), in the Manila Declaration on World Tourism stated that "world tourism can contribute to the establishment of a new international economic order that will help to eliminate the widening economic gap between developed and developing countries and ensure the steady acceleration of economic and social development and progress, in particular of the developing countries".

The tourism outstanding growth, the reach of the historic milestone in 2012 of one billion people travelling the world annually is continuing its ascension as the world's largest economic sector in a strong correlation with the actual challenges – eradication of extreme poverty, promotion of gender equality, environmental sustainability, trade and economic growth, and establishment of lasting partnerships for development (UNWTO, 2013b:2).

Starting from the idea that such a rapid tourism development leaded to the appearance of numerous issues regarding the economic, social, environmental and even cultural impact the industry has on destinations, Wall and Mathieson (2006) suggest that in order to protect them, the tourism has to be viewed as a tool to achieve not only its own goals, but in the same time to contribute to the well-being of people in destination areas, even putting their interests in front of the interests of tourist industries (Wall and Mathieson 2006: 288).

Since the emergence of sustainable development concept in the "Our Common Future" Report in 1987, it has rapidly installed in many economic sectors, tourism not being an

exception, as 6 years later, in 1993 – a journal entirely dedicated to tourism sustainability appeared – "Journal of Sustainable Tourism" (Hunter: 2002).

Even if in the recent decades the sustainable development concept was largely studied, the sustainable development within tourism is a relatively new concept, with a no widely accepted definition (Swarbrooke, 1999; Hunter, 2002; Cocklin, 1995; Liu, 2003; Sharpley, 2000; Berno and Bricker, 2001).

Even so, the World Tourism Organization provides and insists on the following definition of sustainable tourism development: "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the need of visitors, the industry, the environment and host communities" (UNEP, 2005: 12).

In this context, the sustainable tourism should:

- Make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural resources and biodiversity;
- Respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance;
- Ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation (UNEP, 2005: 11).

Butler (1993: 29) while referring to the sustainable development within tourism underlines the need of a balance between all sectors interested in sustainable development, as not only tourism requires natural resources for functioning, defining it as: "tourism which is developed and maintained in an area (community, environment) in such a manner and at such a scale that it remains viable over an indefinite period and do not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and wellbeing of other activities and processes".

In the same context, he underlines the inability of existing definitions of sustainable tourism to meet the expectations of all involved stakeholders, by providing means of its measurement and monitoring. Thus, in order to adopt and further achieve positive results of

sustainable practices implementation, it is imperative to include in the process all stakeholders, starting with public authorities, local residents and not underestimating the role of tourists – as they are choosing the tourism destination depending on their own expectations that by continuous education and information can be redirected towards sustainable forms of tourism (Bulter 1999: 20).

Laws (1995) is suggesting the same idea of regulation and control need, in order to provide sustainability within a tourist destination.

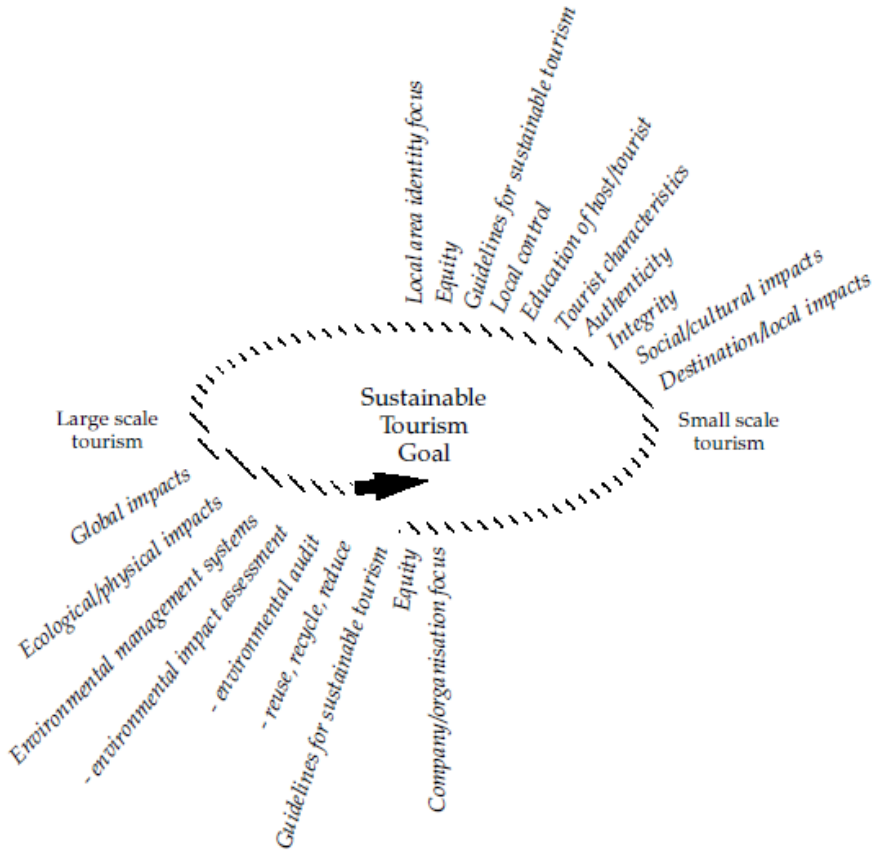
Bramwell and Lane (1993) are describing the emergence of sustainable tourism development approach as a response to the appearance of tensions between tourism industry, tourists, and environment and host communities, underlining the existence of growth limits.

In the same context, the authors suggest to ensure a sustainable tourism development, as it will increase tourist's satisfaction and as result will have an impact on their awareness regarding the caring for places they choose to visit (Bramwell and Lane, 1993: 2).

Lane (1994: 102) argues that "sustainable tourism aims to minimize environmental and cultural damage, optimize visitor satisfaction, and maximize long-term economic growth for the region." In the same context, the author refers to the positive advantages of sustainable tourism strategies, providing practical solutions (Lane, 1994).

Clarke (1997) while developing a framework of approaches to sustainable tourism has also referred to the emergence of the concept as an opposition to the mass tourism, but is concluding by presenting a convergence model (Figure 4), where both large scale and small scale tourism are moving towards sustainable development.

Figure 4: Sustainable tourism within convergence position



Source: Clarke, 1997

Furthermore, even if it appeared as a reaction to the tourism issues in 1970s, the sustainable tourism turned into a very valuable asset, with a great potential and ability to generate positive benefits (Bramwell and Lane, 2012: 1).

Ham and Weiler (2002: 36) define sustainable tourism as: "tourism that is developed and maintained in a manner, and at such a scale, that it remains economically viable over an indefinite period and does not undermine the physical and human environment that sustains and nurtures it".

According to McMinn (1997: 135), sustainable tourism "suggests that proposed tourism developments should have economic advantages, create social benefits for the local community and not harm the natural environment. In addition, these goals should apply not only to the present generation, but to future generations as well."

Further, the author identifies as the main challenge of sustainable development the discrepancy between its perceptions; as a goal - it has viability, but as an objective - it is not so

easy reachable. In this context, the author suggests to perceive sustainable tourism in its entire global dimension, but without dismissing the role of local community, in order to understand better its meaning and to find an adequate tool for its measurement (McMinn, 1997).

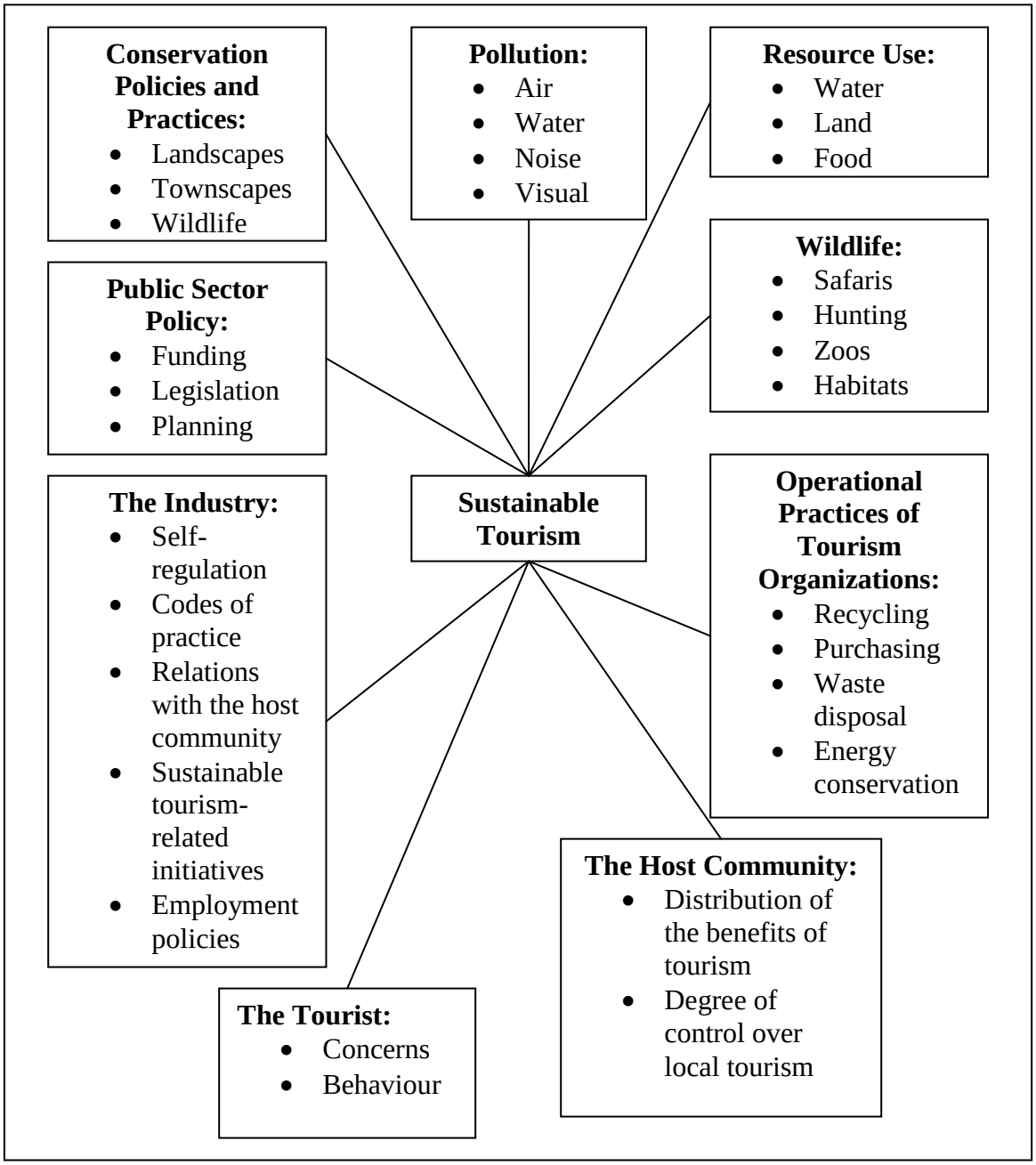
Swarbrooke (1999: 13) trying to develop a complex comprehensive definition of sustainable tourism, provided two versions, where the first one is the adaptation of the Brundtland Report sustainable development definition:

1. "Forms of tourism which meet the needs of tourists, the tourism industry, and host communities today without compromising the ability of future generations to meet their own needs."
2. "tourism which is economically viable but does not destroy the resources on which the future tourism will depend, notably the physical environment and the social fabric of the host community".

In the same context, the author provided the fields of sustainable tourism (Fig.) and its major stakeholders, including:

1. The host community: those directly employed in tourism, those not directly employed in tourism, local business people;
2. Governmental bodies: supra-governmental (EU), national governments, regional councils, local governments;
3. Tourism industry: tour operators, visitor attractions, transport operators, hospitality sector, retail travel;
4. Tourists: mass market, ecotourist;
5. Pressure groups: environment, wildlife, human rights, workers rights;
6. Voluntary sector: non-governmental organizations in developing countries, trusts and environmental charities in developed countries;
7. Experts: commercial consultants, academics;
8. Media: specialist travel, news (Swarbrooke, 1999: 17).

Figure 5: The scope of sustainable tourism



Source: Swarbrooke, 1999

Among the key issues in the sustainable tourism debate (Swarbrooke, 1999: 25) enumerates: private versus public transport, lack of performance indicators, value judgments and lack of factual evidence, foreign influence in developing countries, emphasis on the physical environment, the green tourist, principle of partnership, community involvement and

local control, de-marketing, visitor management, self-contained resort complexes, concept of carrying capacity, power without responsibility, role of public sector planning, technocratic thinking, role of industry, tourist taxes and fair pricing, the ethics and practicalities of conservation, tourist education and eco-tourism.

As regarding the differences between mass and alternative tourism, Leksakundilok (2004: 100) provides a very clear comparison of the phenomena (Table 3).

Table 3: Mass tourism versus alternative tourism

Characteristic	Mass Tourism (MT)	Alternative Tourism (AT)
Market		
▪ Type of visitor	▪ Tourist	▪ Traveller,
▪ Segment	▪ Psychocentric-midcentric	▪ Allocentric-midcentric
▪ Volume and mode	▪ High; package tours, fixed program	▪ Low; individual arrangement, spontaneous decisions
▪ Seasonality	▪ Distinct high and low seasons	▪ No distinct seasonality
▪ Origins	▪ A few dominant markets	▪ No dominant markets
▪ Behaviour	▪ Comfortable and passive	▪ Demanding and active
▪ Numbers of tourists	▪ Small to large group ▪ Rapid growth in the long term	▪ Small group, individual, families ▪ Consistent with low growth
▪ Marketing	▪ Holiday peaks ▪ Hard selling	▪ Staggered holidays ▪ 'Heart' selling
Attraction		
▪ Emphasis	▪ Highly commercialised	▪ Moderately commercialised
▪ Character	▪ Generic, 'contrived'	▪ Area specific, 'authentic'
▪ Orientation	▪ Tourists only or mainly, ▪ Tourists directed	▪ Tourists and locals, ▪ Tourists decide
Accommodation/Service		
▪ Size	▪ Large-scale	▪ Small-scale
▪ Spatial pattern (location)	▪ Concentrated in 'tourist areas' ▪ Limited/ resorts	▪ Dispersed throughout area ▪ communities, households
▪ Density	▪ High density	▪ Low density
▪ Architecture	▪ 'International' style; obtrusive' non-sympathetic ▪ New buildings	▪ Vernacular style, unobtrusive, complementary ▪ Re-use of existing buildings
▪ Ownership	▪ Non-local, large corporations, Large firm, Multinational hotel chain	▪ Local, small business, independent, specific operators
Economic Status		
▪ Role of Tourism	▪ Dominates local economy	▪ Complements existing activity
▪ Linkages	▪ Mainly external	▪ Mainly internal
▪ Leakage	▪ Extensive	▪ Minimal
▪ Multiplier effect	▪ High	▪ Medium
▪ Income distribution	▪ Low	▪ High
Regulation		
▪ Control	▪ Non-local private sector, Multinational decision making	▪ Local 'community', Local decision making
▪ Amount	▪ Minimal; to facilitate private sector	▪ Extensive ; to minimise local negative impacts
▪ Ideology	▪ Free market forces	▪ Public intervention
▪ Emphasis	▪ Economic growth, profits; sector-specific	▪ Community stability and well-being; integrated, holistic
▪ Time-frame	▪ Short-term	▪ Long-term
Management		
▪ Development and development strategies	▪ Rapid development often without planning ▪ Project-led	▪ Low and controlled development, Planned – pace may not matter ▪ Concept-led
▪ Impacts awareness	▪ Effects ignored, i.e. impacts	▪ Minimising negative effects
▪ Energy consumption	▪ Fuel efficient transport	▪ Often inefficient fuel-wise
▪ Space	▪ Resort space-efficient	
▪ Developer	▪ Outsider	▪ Local

Source: Leksakundilok, 2004, adapted from Weaver 1998; France, 1997; Hunter and Green, 1995.

Sharpley (2000) comparing the definitions and characteristics of sustainable development and sustainable tourism reached the conclusion that even if tourism does not fit into many of sustainable development principles, do not cease to embody one of the most efficient providers of economic and social progress, in the same time attracting attention towards the tourism impact, both positive and negative on global level.

Liu (2003), after exploring the sustainable tourism literature and identifying 6 issues he considers important to be addressed: the role of tourist demand (especially at the destination level); the nature of tourism resources; the intra-generational equity importance; the tourism impact on socio-cultural changes; the measurement of sustainability and the forms of sustainable development, concludes by emphasizing the need to manage growth in harmony with the host communities, destination environment and tourists expectations.

Onward, he accentuates the need to develop and provide practical means with the purpose to achieve sustainability and finally, to integrate the sustainability concept into the entire developmental system. All these measures, along with an interdisciplinary approach will contribute to the achievement of a better and more comprehensive sustainable tourism concept, and in result its beneficial implementation (Liu, 2003: 472).

Berno and Bricker (2001: 10) affirm that "tourism is a complex and fragmented phenomenon that despite its critical role in the global economy does not conform to classical definitions of industry and product". In this context, the application of sustainable development concepts at operational level in tourism becomes a real challenge – the same as exposed by Sharpley (2000), and only by continuous collaboration between all stakeholders can be achieved a progress towards a more sustainable tourism, keeping economic, environmental, social and cultural attributes it relies on (Berno and Bricker, 2001).

A strong collaboration on all levels and between all stakeholders appears to be an imperative condition for the achievement of sustainable development on global scale. Thus, sustainable tourism will be able to prove its viability and benefic impact within the broader term of sustainable development.

2.3. Nature-based tourism and ecotourism – conceptual similarities and distinctions

In the context of the arisen sustainability issues, and as a response to the required need of maintaining the balance between the tourism development and environment (Briassoulis and Van Der Straaten, 1992; Pickering and Weaver, 2003), along with sustainable tourism notion, such terms as nature tourism or nature-based tourism or natural area tourism, ecotourism and others, have strongly installed in the specialized literature, emphasizing numerous forms of alternative tourism (Garrod and Fyall, 1998; Cater, 2006; Orams, 1995; Wall, 1994, Weaver, 1997).

Valentine (1993: 108) has structured this amount of terms, positioning ecotourism as one of the forms of broader notion of nature-based tourism (Table 4), but as the only one "which is especially concerned with the appreciation of nature as the primary motive to participate, but with an essential element of zero negative impacts", and identifies it as a sort of tourism which is:

- Based on relatively undisturbed natural areas;
- Non-damaging, non-degrading, ecologically sustainable;
- A direct contributor to the continued protection and management of the natural areas used;
- Subject to an adequate and appropriate management regime (Valentine, 1993: 108-109).

Table 4: Examples of names used to refer to nature-based tourism

Nature-based tourism	Eco-tourism
Nature travel	Nature tourism
Nature-oriented tourism	Wildlife tourism
Environment-friendly tourism	Green tourism
Environmental pilgrimage	Special interest tourism
Sustainable tourism	Appropriate tourism
Alternative tourism	Responsible tourism
Ethical tourism	Community-based tourism
Soft tourism (tourisme doux)	Soft and hard tourism

Source: Valentine, 1993: 108

Goodwin (1996: 287) is one of the authors that strongly points on the differentiation of nature tourism and ecotourism, stating that: "Nature, or nature-based, tourism encompasses all

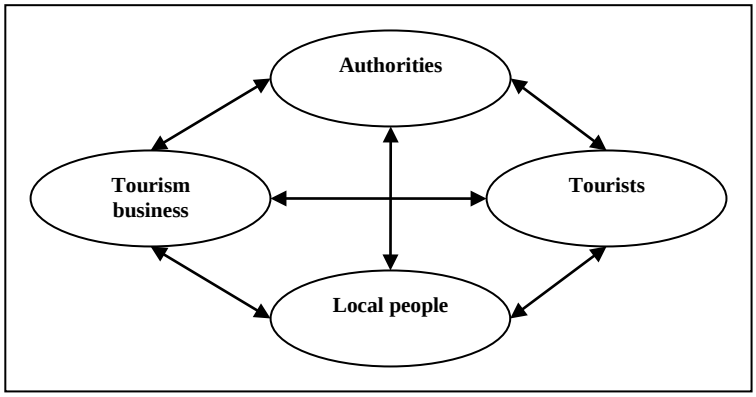
forms of tourism – mass tourism, adventure tourism, low-impact tourism, ecotourism – which use natural resources in a wild or undeveloped form – including species, habitat, landscape, scenery and salt and fresh-water features. Nature tourism is travel for the purpose of enjoying undeveloped natural areas or wildlife."

In the same context, he outlines ecotourism as one of the forms of nature-based tourism, that possesses the ability to benefit the conservation and to increase the awareness towards its importance, and in the same to generate economical benefits and defines it as "low impact nature tourism which contributes to the maintenance of species and habitats either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people to value, and therefore protect, their wildlife heritage area as a source of income" (Goodwin, 1996: 288).

Björk (2000: 194) is arguing that ecotourism can't be equaled in any way to nature tourism, as it represents a unique tourism form, and has to be defined very carefully, focusing on the "balance between ecological, economic, social and cultural aspects of development."

From the above listed perspective, the difference between nature-based tourism and ecotourism is great, even if they both are relying on natural resources. The multidimensional approach, with a focus on sustainability is the main distinctive element of ecotourism. A nature tourist I mainly seeking the landscape environment, while an ecotourist is one of the actors (Figure 6) directly involved in the process of environment conservation and development of host communities (Björk, 2000: 197).

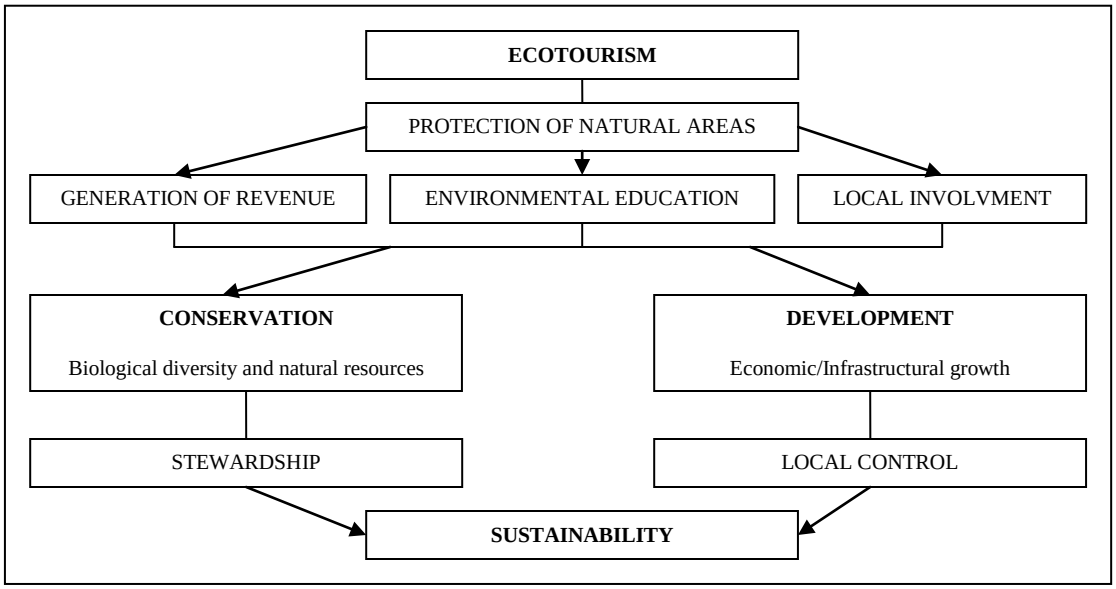
Figure 6: The central actors in ecotourism



Source: Björk, 2000: 196

Ross and Wall (1999: 124) starting from the idea that there is not yet found a consensus regarding the definition of ecotourism, and the impossibility to identify on the ground its distinctions from other forms of tourism, are also arguing that it encompasses more that just travel to natural areas, but is explored as " a means of protecting natural areas through the generation of revenues, environmental education and the involvement of local people (in both decisions regarding appropriate developments and associated benefits). In the same context, the authors provided a figure illustrating the provided definition of ecotourism (Figure 7):

Figure 7: Ecotourism and sustainability



Source: Ross and Wall, 1999: 124

Orams (1995), while exploring the origins of ecotourism, argues that the term was firstly used in 1980s, even if the travel with the purpose to enjoy natural environment is not new.

Further, after analyzing the existing definitions of the ecotourism, he classifies them in two broad categories – the first one, assuming an active level of human responsibility towards the improvement of natural environment and the second one with a low (passive) level of responsibility, concluding that "at a minimum, ecotourism is tourism which is based on the natural environment and seeks to minimize its negative impact on the environment." (Orams, 1995: 5)

Wallace and Pierce (1996: 848) provided the following definition of ecotourism: "travel to relatively undisturbed natural areas for study, enjoyment, or volunteer assistance. It is travel that concerns itself with the flora, fauna, geology, and ecosystems of an area, as well as the

people (caretakers) who live nearby, their needs, their culture, and their relationship to the land. it views natural areas both as “home to all of us” in a global sense (“eco” meaning home) but “home to nearby residents” specifically. It is envisioned as a tool for both conservation and sustainable development – especially in areas where local people are asked to forgo the consumptive use of resources for others.”

Tourism may be said to be true ecotourism, only while embodying the following six principles:

1. Entails a type of use that minimizes negative impacts to the environment and to local people;
2. Increases the awareness and understanding of an area’s natural and cultural systems and the subsequent involvement of visitors in issues affecting those systems;
3. Contributes to the conservation and management of legally protected and other natural areas;
4. Maximizes the early and long-term participation of local people in the decision-making process that determines the kind and amount of tourism that should occur;
5. Directs economic and other benefits to local people that complement rather than overwhelm or replace traditional practices (farming, fishing, social systems, etc.);
6. Provides special opportunities for local people and nature tourism employees to utilize and visit natural areas and learn more about the wonders that other visitors come to see (Wallace and Pierce, 1996: 848-851).

The same complex meaning of ecotourism, including its conservational role and the participation of numerous actors in the process, as described by Ross and Wall (1999), Wallace and Pierce (1996) and Ceballos-Lascuráin (1993) is clearly observed in the ecotourism definition provided by Boo (1991: 4): “nature tourism that contributes to conservation, through generating funds for protected areas, creating employment opportunities for local communities and offering environmental education”.

The International Ecotourism Society (TIES) (2015a) has also provided its set of ecotourism principles that along with those enumerated by Wallace and Pierce (1996) are also referring to deliver of memorable interpretative experiences to visitors and design, construction and operation of low-impact facilities.

Fennel (2003: 24) identifies ecotourism as a separate form of tourism and defines it as "a sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and which is ethically managed to be low-impact, non-consumptive, and locally oriented (control, benefits, and scale. It typically occurs in natural areas, and should contribute to the conservation or preservation of such areas".

In the same context, the author recognizes the culture as one of the components of ecotourism, but not the main one, as are nature and natural resources (Fennel, 2003).

Higgins (1996), while investigating the global business structure of the nature tourism industry including – ecotourists, outbound nature tour operators, inbound nature operators and local nature tour businesses, identifies the origin of ecotourists - industrialized countries, as a global feature of ecotourism, in the same time tends to join the idea that ecotourism is a renewed version of nature tourism.

After analyzing numerous definitions and approaches towards the use of nature-based tourism, ecotourism, protected area tourism and others notions, I am concluding that the terms are in most cases interchangeable, despite the fact that ecotourism is mainly considered as an element of nature-based tourism, but with an essential contribution to multidimensional sustainable development, that can't be achieved through other forms of nature-based tourism. The term "ecotourism" is used more frequently in the recent times, on the strength of the imperative of sustainability challenges, under which all tourism industry has to be reoriented towards sustainable practices (Björk, 2000), diminishing even more the gap between ecotourism and nature-based tourism.

2.3.1. Nature tourism activities

Nature tourism comprises a wide range of activities that can be summarized in the following Table 5:

Table 5: Spectrum of nature-based tourism activities

Bushwalking	Nature study
Forest walking	Picnicking
Sightseeing tours	Horse riding
National parks, protected areas, gardens, zoos	Caving
Geothermal attractions	Canoeing, kayaking, rafting
Lakes	Mountains-related activities (Climbing, biking)
Waterfalls	Bird watching
Scenic flight	

Sailing Hunting Rivers Camping Archeology (fossil digs) Farming Hill walking/walking Volunteering holidays	Wildlife viewing Biking Jet boating Hot pools Snorkeling Orienteering Survival skills training Exploring vineyards

Source: own elaboration

2.3.2. Defining a nature tourist

Given the diversity of the ecotourism market, the visitors may differ in various aspects, including: distance travelled; length of stay; desired level of physical effort and comfort, importance of nature in trip motivation; level of learning desired; amount of spending; desired activities and personal demographics (Lindberg et al., 1997: 11).

In the same context, Lindberg (1991: 3) provided four basics types of nature tourists:

1. Hard-core nature tourists: scientific researchers or members of tours specifically designed for education, removal of litter, or similar purposes;
2. Dedicated nature tourists: people who take trips specifically to see protected areas and who want to understand local natural and cultural history;
3. Mainstream nature tourists: people who visit the Amazon, the Rwandan gorilla park, or other destinations primarily to take an unusual trip;
4. Casual nature tourists: people who partake of nature incidentally as part of a broader trip.

Blamey and Braithwaile (1997) in the context of a social values segmentation of ecotourists, is also providing four types of travelers:

1. Ideological Greens- represent the minority, but are strongly committed to ecotourism, with an embedment in a political ideology of environmental protection, social cooperation and equality;
2. Moral Relativists – do not support strongly no one of the values;

3. Dualists – represent the majority, are seeking alternative solutions to solve the challenges of economic development and environmental protection;
4. Libertarians – represent the second largest group, are less supportive to obligation to protect the environment, to social welfare spending and don't rely on government regulation.

Starting from the concept of hard-to-soft spectrum of ecotourism market, proposed by Laarman and Durst in 1987, Weaver (2002) have explored the two extremes, and moreover, discovered the third segment of ecotourists, that embody the characteristics of both card-core and soft-core nature tourists. Thus, the hard-core ecotourists, in contrast to soft-core ecotourists, are more highly and diversely motivated, more active in the process of exploring and enjoying the destination and more focused on the environmental commitment and sustainability enhancement (Weaver, 2002).

Ballantine and Eagles (1994: 210-212), are describing ecotourists as "outdoor enthusiasts who are well-off financially, well-educated, older people who have free time to travel", and correspond to the following criteria (developed for a Canadian group of travelers to Kenya): the respondent must answer "very important" or "somewhat important" to "learning about nature" as a motivation when planning a trip to Kenya; the respondent must answer "very important" or "somewhat important" to "wilderness/undisturbed areas" as an attraction when choosing a trip to Kenya; and the respondent must spend at least one-third of their Kenyan vacation days on safari.

Robertson (1997: 433) states that an ecotourist is "a traveler who visits a place because of its ecology".

The International Ecotourism Society (2015b) is providing a complex definition of ecotourists: "responsible consumers interested in social, economic and environmental sustainability. Seeking authentic local experiences and opportunities to give back to the communities they visit…seeking to minimize the carbon footprint of their travel, traveling with climate in mind by planning wisely and choosing consciously".

Concluding, an ecotourist embodies the following features: middle to elderly aged; both male and female, but with a slight prevalence of males; traveling with couple; experienced traveler; higher education; higher income (Boo, 1990; Eagles and Cascagnette, 1995; Fennel and Smale, 1992; Ingram and Durst, 1987; Liu, 1994; Wight, 1996).

2.3.3. Nature-based tourism – between destruction and creation

The nature-based tourism is nowadays experiencing a tremendous growth, especially in the emerging countries, where the existing natural areas serve as main attractions, revealing in the same time its power of change – both with positive and negative impacts on the destination areas and on tourism in general (Clifton and Benson, 2006; Goodwin, 1996; Newsome et al., 2013; Buckley, 2003; Briassoulis and Van Der Straaten, 1992; Christ et al., 2003; Wight, 1993).

In this context, it is important to delineate them, especially in the environmental and socio-economic fields, in order to channel the nature-based tourism effects in the right direction.

Since the symbiosis of the environmental elements such as: geographic location; climate and weather, topography and landforms; surface materials; water, vegetation and fauna area key elements for nature-based tourism, their protection and conservation turns into an imperative requisite (Fennel, 2003).

The major positive impacts of ecotourism such as: rise of environmental awareness; environmental preservation (decrease of deforestation, expansion of protected areas, biodiversity conservation, wildlife protection); employment and educational opportunities for local communities; empowerment of the communities; economic development as result of tourists expenditures, tax revenues and governmental investments; cultural viability and heritage maintenance, unfortunately, can turn into negative assets if badly managed (Dodds, 2009; Farrell and Marion, 2001; Horton, 2009).

As regarding the negative socio-cultural impacts of ecotourism, Wearing and Larsen (1996: 122) have summarized them into a comprehensive list: high financial leakages because of foreign ownership of tourist developments and employment of non-locals; tourist bring their own social values and behaviour, which can distort social habits and customs; the seasonal nature of tourism can be more disruptive than year round activities and can create unstable unemployment; traditional activities such as farming may decline through lack of labour and competition for space from tourism; increased prostitution and crime; an increase in the cost of living for the local community; community members may perceive that the area has been developed for foreigners only and feel resentment towards them; discontent among communities who find it difficult to co-exist with tourists because the tourists are on holiday whilst the community members must continue their work.

In the same year, Ceballos-Lascuráin (1996) has identified numerous negative impacts of nature-related tourism activities on:

Geological exposures, minerals and fossils: fossil depletion, abrasion of rock faces, wearing away of surface travertine deposits erosion;

Soils: soil removal, erosion, creep, compression and break-up, and as result decline in ground vegetation, soil organisms and difficulty in drainage;

Water resources: pollution;

Vegetation: decrease in species diversity, as result of trampling;

Wildlife and ecosystems: decrease in species as result of hunting and fishing, disturbance of birds with water-floating nests by motorboats and water skiers, habitat changes;

Sanitation systems: negative impacts of waste disposal on the environment, public health and local economies;

Landscape: negative aesthetic impact, because of littering, vandalism and inappropriate physical infrastructure;

Cultural environment: loss of irreplaceable information as result of disturbance of archaeological sites, disfiguration of sites and as result decrease in their archaeological value.

Newsome and Rodger (2013) have investigated the interaction between humans and wildlife – represented by both flora and fauna, and elucidated that despite the promotion of ecotourism concept as entirely sustainable, in reality it is not so inoffensive. Among the negative effects were identified the following aspects: disturbance at resting and refuge sites of birds and animals; the initiation of frequent flights with the aim to escape from danger, under the influence of human presence; stress and disruption from other normal activities, especially egg laying; disruption of feeding patterns/hunting behaviors (Newsome and Rodger, 2013: 355). Further, in order to avoid the negative impacts of tourists on wildlife, the authors warn regarding the importance to understand the visitors expectations, behavior and overall satisfaction, that can be detected through an adequate management approach.

The prevalence of studies identifying negative impacts of ecotourism is related to the fact that it is practiced particularly in the developing countries, where is still not developed and implemented an adequate legal framework and a comprehensive set of managerial and marketing strategies, aiming to increase the positive impacts of ecotourism, minimizing its destructive element. In this context, a strong cooperation between all stakeholders is mandatory in order to undertake all necessary actions, with a special attention towards the education of

tourists in relation to the environment (Farrell and Marion, 2001; Furqan et al., 2010; Hall and Mc Arthur, 1993; Jacobson and Lopez, 1994; Lindberg, 1991; Orams, 1995; Wearing and Larsen, 1996; Weaver and Lawton, 1999; Wells, 1993).

In other words, ecotourism is not a panacea, but it has numerous positive impacts on the environment, economy, society and culture of the destinations where it is practiced, and a common worldwide effort can contribute to its transformation into a truly sustainable activity.

Chapter III: Overview of tourism development in Moldova

3.1. Location and presentation of the study area

Republic of Moldova is a landlocked country, situated in the Central part of Europe in the North-Eastern Balkans and comprises an area of 33,843.5 km^2 (including Transnistria – unrecognized Pridnestrovian Moldavian Republic, with special legal status of autonomous territorial unit), occupying the 32nd place in the ranking of countries by total area. On the North, East and South it is surrounded by Ukraine, and on the West it is separated from Romania by the Prut River. The territory extends on a distance of 350km from North to South and 150km from West to East (IEG, 2011).

The total length of the national boundaries is 1,389 km, including 939 km with Ukraine and 450 km with Romania. The most Northern point is the village of Naslavcea (48º21´ N 27º35´ E), while the most Southern point, Giurgiulesti (45º 28´ N 28º 12´ E), which is the only settlement on the bank of the Danube river. The most Western point is the village of Criva (48º16´ N 26º30´ E) and the most Easter point is the village of Palanca (46º 25´ N 30º 05´ E). The lowest point is represented by Dniester river (– 2m) and the highest by Balanesti hill (+430m) (IEG, 2011).

Figure 8: Physiographic map of Moldova

Source: UN Cartographic Section, 2001

Moldova's current natural conditions were formed mainly under the influence of neighboring physical-geographical regions: the South-Western part of the East European Plain and the Carpathian mountain system. In this context, despite its relatively small area, country's territory is distinguished by a diverse, heterogeneous nature and contrasting natural conditions. The greatest part of Republic of Moldova territory is occupied by the Eastern part of an integral unit of relief – Podisul Moldovei (Moldavian Plateau), which extends from the piedmont of Ridges of Bukovina and Moldavian Sub Carpathians in the West and until the Dniester River in the East. The left part of Dniester is penetrated by the South-Western branches of Podolian Plateau. Within these major units, apart from the plateau relief is spread the relief represented by hills and plains (IEG, 2011).

Republic of Moldova has a temperate continental climate, formed as result of the country's positioning – at approximately equal distances from the equator and the North Pole. The atmospheric air circulation is characterized by the predominance of warm air masses, and in some periods – wet ones, coming from the West (from the Atlantic Ocean). Periodically, the territory of Moldova is crossed by additional air masses: the warm moist air from the Mediterranean Sea that brings heavy rains; the dry, temperate continental air from the East and South-East of Eastern Europe Plain that leads to heat and drought; the invasion of arctic air causes sudden change of weather and temperature decrease (Institutul de Ecologie şi Geografie, 2011). The average annual temperatures constitute 9, 4º in North (Briceni), 11, 1º in Center (Chişinău) and 11, 5º in South (Cahul). The annual precipitations average varies from 639mm in North (Briceni), 531mm in Center (Chişinău) and 716mm in South (Cahul) (NBS, 2014a).

Insufficient humidity, plain and plateau topography and other physical-geographical factors explain the modest water reserves of Republic of Moldova. The rivers belong to the Black Sea basin. Small rivers are predominant. Among the largest are - Nistru, Prut, Răut, Bâc, Botna, Ialpug, etc. According to their specific, the rivers can be grouped as follows: rivers of Nistru bassin, rivers of Prut bassin and Southern rivers flowing into the Danube and Black Sea limans. The main sources of rivers waters supply are snow and rain, the role of groundwaters being much more lower. This way of supply causes the maximal level of rivers in spring. In summer, in the periods of torrential rains, the river levels, especially the smaller ones can rise considerably, causing sometimes catastrophic floodings (IEG, 2011).

However, there is a considerable number or artificial lakes (over 3500), built for the purpose of water supply of hydropower plants, for irrigation, fishing, water needs of industries

and human settlements. Large lakes and hydroelectric plants were built on Prut and Nistru Rivers (IEG, 2011).

Along with the surface waters, the groundwaters are of great importance in the human activity, but unfortunately, their reserves are also low. An important role of these waters is attributed to the phreatic waters that serve for the supply of drinking water for the most of the rural population. Deep groundwaters, with a more constant regime relative to the phreatic ones, sometimes are mineralized, possessing curative qualities (Cahul, Camenca, Varnița, etc.) (IEG, 2011).

As regarding vegetation, fauna and flora – it is very reach and various, spreaded in two natural zones: Steppe and Forrest-Steppe. The prevalent soils are chernozems (IEG, 2011).

According to the most recent data provided by the NBS, the total number of population of Republic of Moldova for 1 January 2015 was 3555000, 2 (NBS, 2015), with 1503000 living in urban areas and 2054000, 6 living in rural areas (NBS, 2015).

According to the 2004 population Census, the main ethnic groups are represented by Moldovans – 75,8%, Ukrainians – 8,4%, Russians – 5,9%, Gagauzians – 4,4%, Romanians – 2,2%, Bulgarians – 1,9%, 1% of other nationalities (Gypsies, Jews, Poles) and 0,4% undeclared (NBS, 2004).

The official language in Republic of Moldova is Romanian.

3.2. The context of tourism emergence and development

Republic of Moldova is one of the young European states, appeared as the result of the Soviet Union Collapse, and since the achievement of the independence (1991) and the adoption of the new Constitution (1994), the country faced a protracted transition period, marked by a bunch of events that were continuously disturbing its evolution into a politically, socially, economically and culturally consolidated entity.

The transition from a dependent state to independence, from centralized to market economy and from a communist to a democratic political system has considerably shaken the whole nation.

In the context of a drastic economical recession caused by the rupture from the Soviet Union, the Transnistrian conflict, the lack of a consequent legal framework and positive reforms and accordingly - an imminent extension of poverty, a long-lasting complex crisis installed.

As result, only with the beginning of the stabilization process (2000-2001), the state could assess the positive effects of the before neglected resources on the national economy, identifying the tourism sector as a catalyst for the generation of multiple benefits and development of disadvantaged areas (rural areas), cultural-historical monuments and natural protected areas.

The emergence of the tourism sector in Moldova is strictly correlated with the period of Moldova's reborn, when was created the basis of the tourism institutional framework.

3.2.1. The evolution of tourism institutional framework

Since the beginning of the multidimensional transition of Republic of Moldova and straight to its integration into the globalization process, the management of the tourism sector has passed through three major stages.

According to the Diagnostic Analysis of the Tourism Sector from Moldova for 2003-2010, elaborated by the Association of Tourism Development in Moldova (2011):

1) The first stage comprised the period between 1990 and 1994, when the state didn't imply directly in the process of tourism sector coordination. The activity of the State Department for Tourism of R.S.S. M (1990-1992) and the Ministry of Youth, Sports and Tourism (1992-1994) was sharply market by the uncertainties regarding Moldova's properties in Ukraine and Russia. During this stage were created associations oriented towards the initiation of tourism development in the area – International Association for tourism and Exchange within R.S.S.M "Basarabia-Tur" and National Association for Tourism "Moldova-Tur". Were undertaken the first statistical investigations within the domain and licensed the first tourism-related enterprises.

2) From 1995 until 1999, one of the departments of the Ministry of Economy was the only responsible for the management of tourism sector. The most important achievements consisted in the elaboration of the concept of tourism development (1997) and the preparation of the first law of tourism (2000).

3) The stringent need of Government to coordinate directly the tourist sector leaded to the creation of a national tourism authority, aiming to implement quantitative and qualitative reforms in order to ensure a lasting development of inbound and outbound tourism. The National Tourism Agency (2000-2001), implemented the UNDP project

"Sustainable development of Tourism in Moldova", established the special Fond for the Tourism Development and Promotion and marked the first tourist routes. The Tourism Development Department (2001-2005) elaborated the Strategy of Sustainable Development of Tourism for 2003-2015, created the National Training Center for Tourism Industry Personnel, developed the national classification system in tourism (accommodation and alimentation structures), and elaborated the National Programs "Moldavian village" and "Wine Route" (2004) in partnership with other authorities. The Ministry of Culture and Tourism (2005-2009) edited the new tourism law (2006), adopted the plan of institutional functioning, created the Commission for the rural tourism development, developed the most representative tourist routes and undertaken various actions aiming to promote the image of Moldova as a tourist destination (ADTM, 2011).

Since 2009, the tourism sector is completely managed by the Tourism Agency of Republic of Moldova, whose activity is oriented towards the raise of national and international awareness towards Moldova as an ecotourism destination, and in the same time identifying problems and providing solutions for the development of the strongly correlated sectors with the tourism.

3.2.2. National Governmental and Non-Governmental Tourism related Organizations

The tourism sector in Republic of Moldova is managed by the Tourism Agency of Republic of Moldova (Agentia Turismului a Republicii Moldova) – a specialized central administrative authority subordinated to the Government, which elaborates and promotes the state policy in the tourism area.

The Agency's mission consists in development and implementation of the legislative and regulatory framework, strategies and state policies on tourism; domestic tourism development and promotion of the country as a tourist destination abroad; protection of the rights of subjects of legal relations in tourism; and ensuring the provision of tourism services to international standards (ATRM, 2015a).

Among the main attributions of the Tourism Agency of Republic of Moldova are comprised the following basic aspects:

a) To elaborate and submit for Government approval tourism policy documents, after the prior coordination with interested authorities and institutions;
b) To develop tourism legislation, harmonized with international norms and economic mechanisms of tourism development stimulation;
c) To coordinate the measures regarding the implementation of public policies in tourism and within its competence, to assume the responsibility for their implementation;
d) To perform analyses and forecasts regarding the tourism development in country and to provide information related to the field;
e) To develop and operate activities to promote Moldova's image on national and international levels, organizing tourism related exhibition activities in the country and abroad;
f) To represent within international and regional organizations the state's interest in the tourism field, to coordinate and monitor the collaboration of Republic of Moldova with the World Tourism Organization and other international organizations in the field;
g) To coordinate the implementation of the technical assistance programs provided by the European Union, World Tourism Organization and other organizations;
h) To organize and monitor the heritage, to ensure its valorization and protection, to conserve and protect the sights of natural and anthropogenic heritage within the tourist area in accordance with law;
i) To initiate and monitor the creation, functioning and liquidation of tourist areas;
j) To manage the Register of tourist areas;
k) To approve the urban planning documentation on tourist areas and resorts, as well as the documentation referring to constructions in the tourism field;
l) To regulate and control the quality of rendered tourist services;
m) To prepare and submit for Government approval methodological norms and classification criteria of the tourist accommodation structures and economic agents within the tourism sector, and the further control of their respect;
n) To develop methodological norms concerning the opening of tourist routes, to approve and record them;
o) To collaborate with various associations and NGO's on issues related to tourism;

p) To provide methodological and informational assistance to economical agents, associations and local authorities from the tourism industry;
q) To organize and supervise the editorial and advertising activity within the tourism domain;
r) To organize the preparation and the continuous training of the staff involved in tourism related activities, to coordinate the activity of the National Training Center for Tourism Industry Personnel;
s) To develop and to submit for Government approval the model of tourist services contract and the model of tourist voucher
t) To monitor tourist circulation and to regulate the tourist activity in the territory, in collaboration with local government authorities;
u) To participate in the activity of Tourism Advisory Board and to approve its nominal Regulation and composition;
v) To perform other duties established by law (ATRM, 2015a).

Over years, in the context of Moldova's slow, but stable formation and development as a country with potential, emerged a number of additional non-governmental organizations related to tourism, each one with their own specific orientation.

The non-governmental National Association of Rural, Ecological and Cultural Tourism in Moldova (ANTREC), that since the founding of the first agro-touristic business in 2000, is oriented towards the identifying and promotion of the rural, ecological and cultural tourism, strongly pointing on its sustainable development, is nowadays one of the main promoters of the National Tourist Product on national and international levels. Along with its contribution to the elaboration and improvement of the tourism legal framework, the Association develops and provides support for the parties interested in offering rural tourism services (ANTREC, 2015).

The National Association for Inbound Tourism in Moldova (ANTRIM) aims to promote fair competition in the tourism services sector on national and international levels, to develop the cooperation within the business community in the area of tourism services from Moldova, encouraging the investments in the respective sector. Its main objectives are focused on: promoting the image of Moldova as a tourist destination; development of the profile and image of the tourist services sector of Moldova; increasing the level of cooperation and collaboration between the members of business community from the area of tourism services providing; and

the collaboration with the public authorities in order to improve the business environment, the legal framework and the general perspectives of the sector (ANTRIM, 2015).

The Association of Tourism Development in Moldova (ADTM) – specialized in actions of tourism sector promotion, the development of professional skills and the encouraging of various partnerships, aims on contributing to tourism development (tourist areas; touristic image of national and regional destinations; conservation of natural, cultural and historical tourist resources); on achieving partnerships between the main stakeholders, promoting international and cross-border cooperation; on the development of new tourism destinations; and on the implementation of socio-economic and environment protection actions within the tourist areas, with the further valorization of tourism resources (ADTM, 2015).

The recently created Federation for the Promotion of Tourism from Moldova (FPTM) in September 2014, represents a union of legal entities (agencies and organizations within the tourism area), pursuing the aim to develop the tourism in Republic of Moldova, by elaborating strategies, tourist data bases of tourist sights from different country regions, as well as the promotion and collaboration with central and local administration, pursuing the improvement of tourism services. The organizing of tourism events is regarded as being one of the main ways to raise the awareness towards Moldova as a tourism destination, on both national and international levels (FPTM, 2015).

3.3. General overview of the tourism sector

In the context of the worldwide growing importance of the tourism sector, Republic of Moldova tends to join the popular trend of tourism development, by identifying and highlighting its vast local potential.

Despite its small area and lack of such high demanded tourist attractions as sea and mountains, Republic of Moldova possesses a rich tourist potential that can essentially contribute to the development of the country.

The Moldavian tourist product is formed from the mix of the most representative and unique national features, including: people and hospitality (considered one of the most valuable and appreciated assets), favorable geographic position, diverse natural resources, culture and popular traditions, rural life, wine and traditional cuisine, man-made attractions – ancient rupestral monasteries, fortresses, archeological monuments, aristocratic mansions, the largest

wine collection (2 mln bottles) in the world at Milestii Mici winery and one of the largest underground wine cellars. (Milestii Mici – 200 km length and Cricova – 120 km length) (ME, 2011; Milestii Mici, 2013; Cricova, 2014).

One of the advantages possessed by Moldova is the fact that it never experienced massive industrialization and massive tourism, offering the opportunity to enjoy authentic experiences.

The main forms of tourism comprise: ecologic tourism, cultural tourism, rural tourism, wine tourism, health and wellness tourism and business tourism, denoting their irregular development, as other perspective forms of tourism are still frozen (ATRM, 2014).

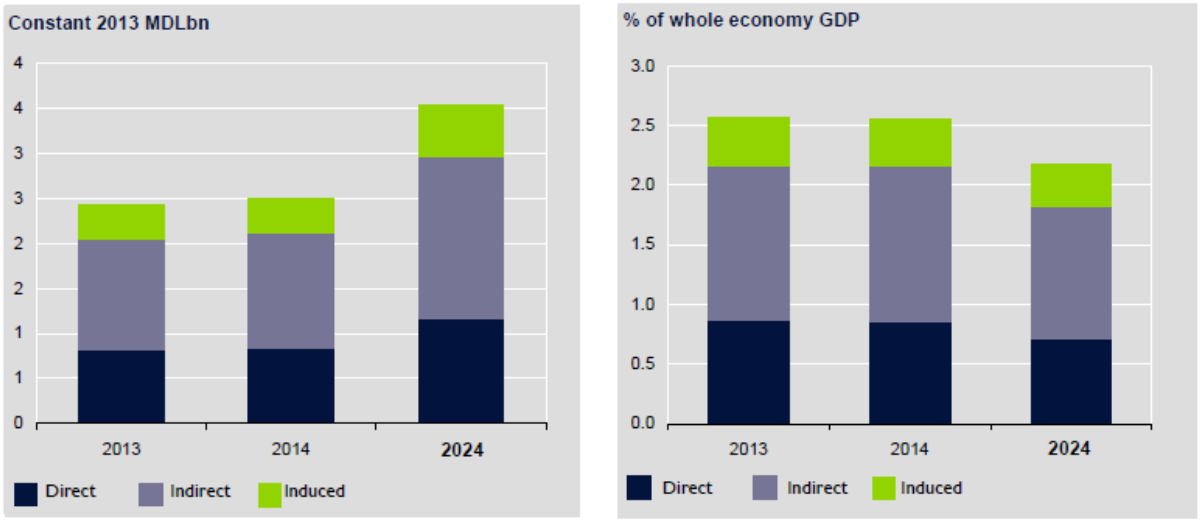
Within the Strategy of Tourism Development "Tourism 2020", is identified a range of tourist forms that require incentivizing: gastronomic, sport, urban, nostalgic, academic, transit, aquatic and adventure tourism. In the same context is highlighted the need to point more on the importance of the ecological tourism, since the country meets all the conditions for its ascension to the first position – great number of natural protected areas with a rich biodiversity, and can exploit it for the sustainable development of the entire community(ATRM, 2014).

The tangible economic revival achieved by a great number of countries that relied on their tourism resources potential and their positive experience, appears to be one from the most important incentives for the national tourism development by the collective implication of all interested stakeholders. The positive effects of the increasing attention of local authorities and private entities towards the tourism sector can be already observed in economic terms.

According to data published in the recent Report on the economic impact of tourism in Republic of Moldova (2014), published by the World Travel and Tourism Council, the direct contribution of Travel & Tourism to GDP was MDL 0.8bn (0.9% of total GDP) in 2013, and is forecasted to rise by 3.2% in 2014, by 3.3% per annum from 2014 until 2024, reaching MDL 1.2bn (0.7% of total GDP) in 2024 (Figure 9).

The same positive trend is forecasted for the total contribution to GDP, evolving from the MDL 2.4bn (2.6% of GDP) in 2013, to 3.4 % in 2014, further rising by 3.5% per annum to MDL 3.5bn (2.2% of GDP) in 2024.

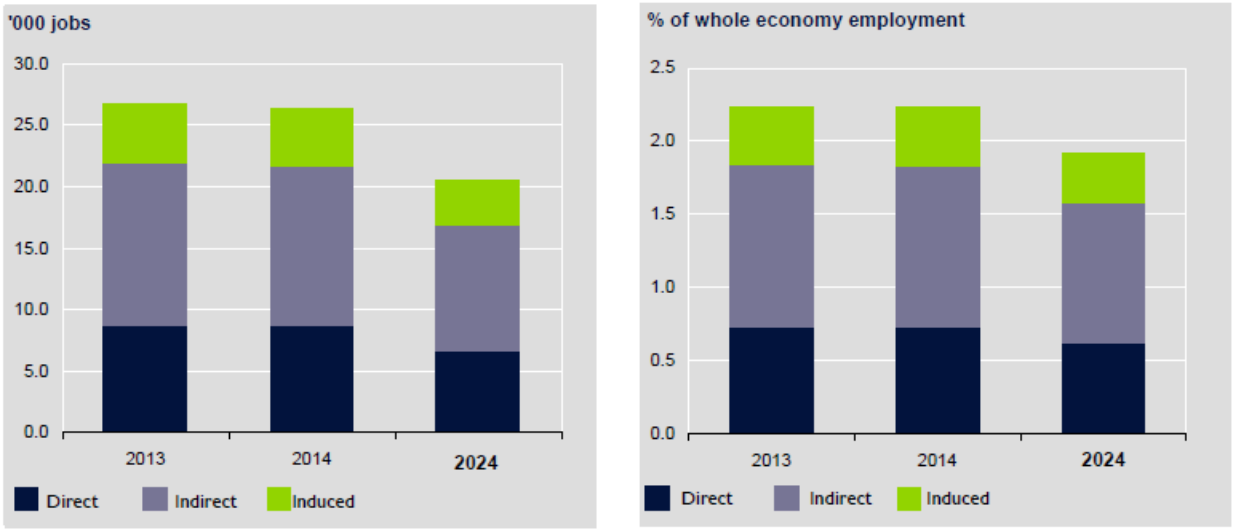
Figure 9: Total contribution of Travel and Tourism to GDP



Source: WTTC, 2014

Negative trends are expected to affect the direct and total contribution of Travel & Tourism to the employment. From the directly supported 8,800 jobs (0.7% of total employment) in 2013, its contribution is expected to fall by 1.4% in 2014 and by 2.6% per annum to 6,500 jobs (0.6% of total employment) in 2024 (Figure 10).

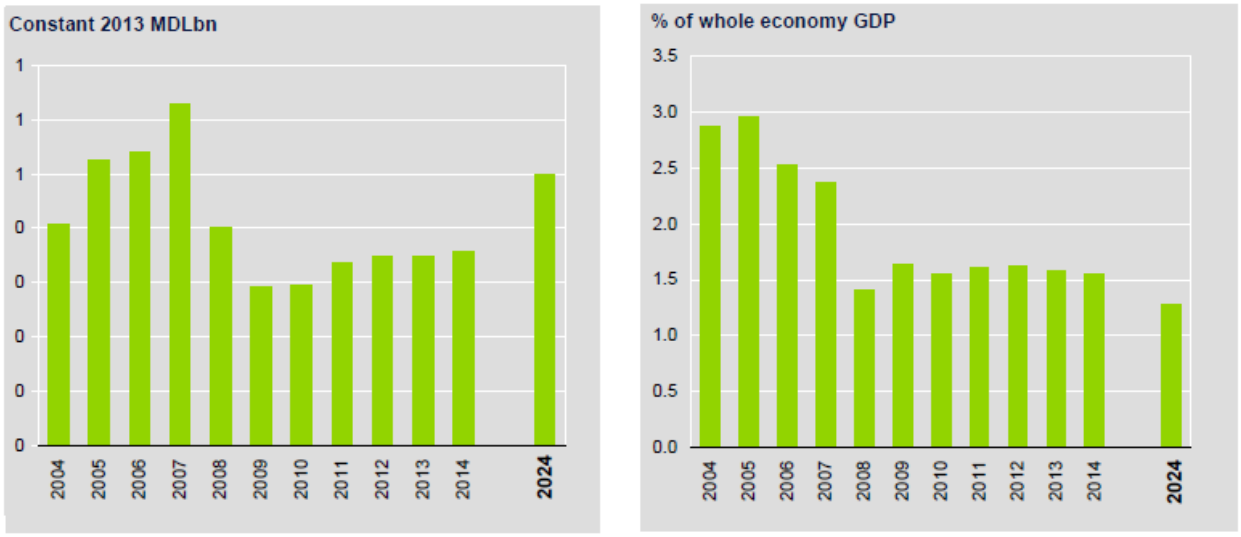
Figure 10: Total contribution of Travel & Tourism to employment



Source: WTTC, 2014

The investments of MDL 0.3bn equivalent to 1.6% of total investment registered in 2013, should rise by 2, 4% in 2014 and by 3.4% per annum until 2024, when it is expected to reach MDL 0.5bn (1.3% of total) (Figure 11) (WTTC, 2014).

Figure 11: Capital investment in Travel & Tourism

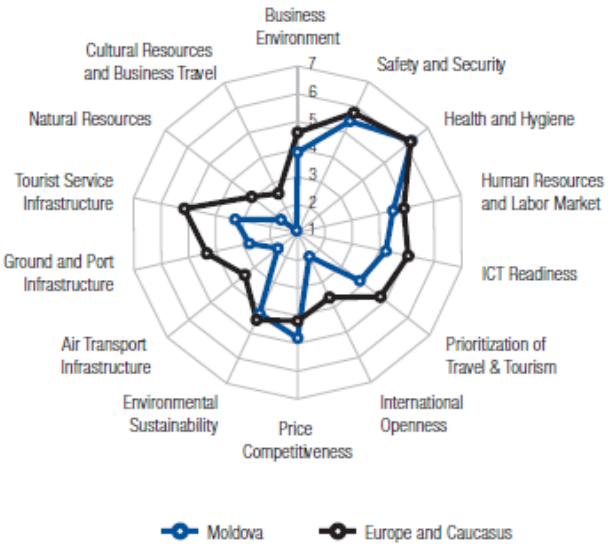


Source: WTTC, 2014

According to the Travel and Tourism Competitiveness 2015 Report, based on 14 indices from 4 subcategories (enabling environment, T&T policy and enabling conditions, infrastructure, and natural and cultural resources), Republic of Moldova is ranking the humble 111 position from 141 available (Annex 4). Such a lamentable situation is influenced by an improper business environment, low government prioritization of T&T industry, limited international openness, underdeveloped air, ground and port infrastructure, weak tourist service infrastructure and relatively few and untapped natural and cultural resources (Annex 5). Nevertheless, Moldova has a good position in relation to safety and security, health and hygiene, human resources and labour market, ITC readiness, price competitiveness and environmental sustainability (Annex 5) (World Economic Forum, 2015).

As regarding Moldova's position among European countries and Caucasus, it is situated on the last position, the only better index being the price competitiveness (Figure 12).

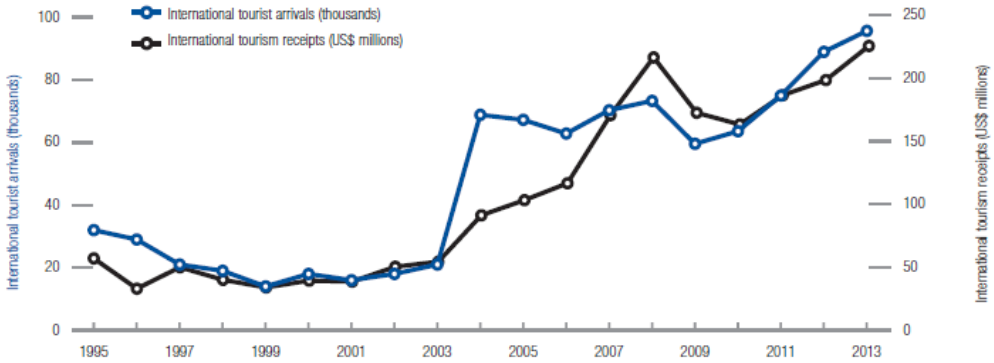
Figure 12: Moldova's Travel and Tourism index as compared to Europe and Caucasus



Source: World Economic Forum, 2015

Though, the evolution of the T&T industry is registering a positive trend in both international tourist arrivals and international tourism receipts, accounting for 96000 international tourist arrivals in 2013 (Figure 13).

Figure 13: Evolution of the Tourism and Travel industry in Moldova over time



Source: World Economic Forum, 2015

As regarding the statistical evidence of number of international tourist arrivals, the main tool for its measurement on international level is the Tourism Satellite Account. Unfortunately, Republic of Moldova is still not using it, and this fact is explaining the extremely low positioning of the country as a tourism destination on international market. The main indicators

used for this purpose in Moldova are the data provided by tourism agencies and tour operators, and data provided by the accommodation units. In this context, the number of international tourist arrivals that appears on the great majority of national and international resources does not represent the real situation, as it presents humiliating data including only persons that have used the services of tourism agencies and tour operators when coming to visit Moldova. According to this data, in 2013 the country was visited only by 13150 tourists (ATRM, 2014).

In this context, the numbers that have to be taken into consideration, while presenting the international tourist arrivals have to be retrieved from the tourist accommodation structures, showing a total of 95640, the same amount as provided above by the World Economic Forum.

Even so, is noted a positive trend both in the number of arrivals organized by travel agencies (Table 6) and the number of tourists accommodated in the existent units (Table 7).

Table 6: Tourism organized by travel agencies and tour operators

Total	2006	2007	2008	2009	2010	2011	2012	2013	2014
	14239	14722	8710	9189	8956	10788	12797	13150	14362

Source: NBS, 2014b

Table 7: Number of foreign tourists in collective tourist accommodation structures

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	62771	70302	73288	59563	63593	75000	88956	95640	93897

Source: NBS, 2014b

The small decrease of 1, 8% in international tourists arrivals in 2014 compared to 2013 can be related to the unstable political situation in the neighboring Ukraine, as the main countries exporting tourists to Moldova are the neighboring ones: Romania – 22624, followed by Ukraine – 10951, Russia – 8368, USA – 6064, Italy – 5143 and Germany – 4672 (NBS, 2014b).

The internal tourism is accounting for 43045 tourists and excursionists in 2014 (data provided by tourist agencies and tour operators), showing an increase by 20, 6% comparing to 2013, when it accounted for only 34172 tourists (NBS, 2014b).

3.4. SWOT analysis of Tourism sector in Moldova

The tourism sector in Republic of Moldova despite the fact that it is too young, has already registered considerable performances. Although, in comparison with other sectors of the national economy it is still very weak and underdeveloped.

In order to understand better the framework under which it evolves I have analyzed and highlighted its main features, including strengths, weaknesses, threats and opportunities.

Strengths:

- Tourism sector is managed by a central Agency, directly subordinated to Government (Agency of Tourism of Republic of Moldova);
- Existence of numerous NGOs aiming to promote the tourism development in Moldova;
- Positioning of tourism as a priority sector of the national economy;
- Financing of the tourism industry by the state;
- Financing of the tourism industry by international organizations;
- Existence of a normative and legislative framework for tourism regulation;
- Active functioning of Tourism Agency College and Advisory Council;
- Functioning of 3 centers of professional training for personnel from tourism industry;
- Existence of vast natural and antrophogenic tourist resources;
- Cheap labour force;
- Suitable climatic conditions for the practicing of tourism all year round (existence of four distinct seasons);
- Existence of tourist routes;
- Increased potential of popular and traditional culture (crafts, folklore, etc.);
- Availability of modern accommodation and catering units;
- International cooperation;

- Promotion at international level of Republic of Moldova as a tourist destination;
- Promotion of investments in the tourism sector;
- Active use of informational technologies for the promotion of Moldova as a tourist destination;
- Existence of conditions for the development of business tourism (modern conference rooms) and other underestimated forms of tourism.

Weaknesses:

- Tourism legislation does not correspond to European standards;
- The normative and legislative framework is insufficient and outdated;
- The recreational component as part of the tourist services is unvalorized – the recreational activities do not possess a permanent character, their majority is held in the urban areas, insufficiency of recreational units, lack of personalized offers;
- Negative tourism balance – the number of Moldavian tourists travelling abroad is greatly overpassing the number of arrivals in Moldova;
- The majority of tourist routes are created conventionally – they are not registered and certified and insufficiently promoted, especially on the local market;
- Limited number of travel agencies and tour operators providing national tourism product;
- Insufficiency of 2-3 stars hotels – expensive accommodation services;
- Few classified accommodation units;
- Limited number of accommodation structures in the rural areas;
- Insufficient tourist guiding indicators - lack of informational panels in the proximity tourist sights;
- Lack of equipped place for camping practice;
- Territorial imbalances in the administration and promotion of national tourism offer;
- Low-level cooperation between in charge tourism specialists within regions;
- Lack of ambition for regional competitiveness of national tourism;
- Insufficient financial support of the state for the promotion of tourism (exhibitions, promotional material, financial support of projects in the field, etc.);

- Insufficient and ineffective promotion of Moldova as a tourism destination on both national and international markets;
- Reduced non-budgetary funding;
- Unqualified staff that does not possess foreign languages;
- The inexistence of "tourist guide" specialization;
- The statistical data regarding the international tourist arrivals are calculated wrong and don't reflect the veridical situation within the sector, as result the low positioning of the country on international level;
- Lack of individual tourists evidence;
- Inefficiency of the mechanism that controls the respecting of the quality of the provided tourist services;
- Weak infrastructure;
- Deteriorated cultural heritage;
- Lack of tourist maps.

Opportunities:

- Moldova is a member of numerous international organizations related to tourism development;
- Connection with main airline hubs;
- Lack of necessity to obtain a visa for the citizens of European Union, USA, Japan, CIS countries;
- Demonopolization of the aviation sector – entry of low-cost airlines on the market;
- High degree of hospitality;
- A benefic strategic positioning of the country (border with CIS and European Union);
- Massive penetration of the international technologies and communications in the tourism sector;
- Great potential for the development of new forms of tourism: gastronomic, sport, urban, nostalgic, academic, transit, aquatic and adventure tourism;
- Increased attention towards ecotourism as a way to increase sustainable development;
- The creation of the first National Park "Orhei";

- Political support;
- Increasing number of projects of external assistance for tourism development;
- Increasing number of sport, cultural-artistic events with high tourist attraction potential;
- Renowned brand of wine country;
- Unique wine cellars;
- Existence of 22 bilateral Collaboration Agreements concerning tourism development;
- Increasing number of programs concerning investment attractions;
- Opening of Giurgiulești port;
- The launch of the tourism brand of the country and development of a logo;
- The possibility of inclusion in the UNESCO list of World Heritage Sites of the cultural-natural reserve "Old Orhei";
- The launch of the first mobile application "Moldova Holiday";
- The signing of the EU – Moldova Association Agreement offers vast opportunities for the development of tourism.

Threats:

- Insufficiency of administrative capacity;
- Lack of favorable investment climate;
- Lack or improper organization of public sanitary groups;
- A modest evolution of tourism sector;
- Low competitiveness of national tourist offer;
- Risks related to instable internal political conjuncture;
- Instability in the neighboring Ukraine;
- Deterioration of good relations with the Russian Federation;
- Insignificant impact of tourism industry on social-economic development of the country;
- Moldova is practically unknown as a tourism destination;
- Slow progress of reforms;
- High seasonality;

- Inefficient use of funds provided by the European Union for the development of tourism industry;
- Lack of transparency in relation to tourism sector administration;
- Massive immigration;
- Natural hazards that have a negative impact on the tourist resources (especially natural resources);
- Population's failure to acknowledge the importance of protection of natural and cultural heritage and the economic advantages that can be achieved through their valorization.

The elaborated SWOT analysis provides the possibility to develop a set of tangible proposals aiming to reinvigorate the tourism sector and to orient it in the right direction, in order to contribute to the overall sustainable development of the country. The identified weaknesses and threats will help to avoid the irrational use of available resources, in the same time contributing to the strengthening of the tourism sector, reducing its vulnerability and dependence on external factors.

Chapter IV: Moldova's natural tourism potential and its valorization

4.1. Natural resources potential

The biological diversity of Republic of Moldova is conditioned by numerous factors – its geographical position - at the confluence of three biogeographic zones: Central-European, Eurasian and Mediterranean, climatic conditions, paleogeographic conditions, biota change with neighboring regions, and antrophic impact (ME, 2014a; IEG, 2011).

The main areas of endangered and vulnerable plant and animal species are concentrated in the beech (Fagus Sylvatica), sessile oak (Quercus petraea) and pedunculate oak (Quercus robur) forests from the Central zone, where are kept several surfaces with spontaneous vegetation ("Codrii", "Plaiul Fagului", "Padurea Domneasca", "Iagorlac" scientific reservations; National Park "Orhei"; landscape reserves "Padurea Capriana", forest complex "Orhei", landscape reservations "Trebujeni", "Padurea Capriana", "Padurea Harbovat", etc.). A high concentration of steppe endangered and vulnerable plant species is also observed in the meadow forests from the slopes of Nistru and Prut Rivers and in the "Ciumai" and "Bugeac" reservations from the South of the country. The scientific reservation "Lower Prut" and Manta and Cahul lakes serve as habitats for many endangered aquatic and marsh species (ME, 2014a).

4.1.1. Species – flora, fauna and genetic resources

Flora

The flora of Republic of Moldova is relatively rich and includes 5568 plant species – 2044 superior plants and 3524 inferior plants. The natural and anthropogenic ecosystems are dominated by magnoliofites – 1860 species, briophytes – 158 species, pteridofites – 17 species, ecvisetofites – 8 species and gymnosperms – 1. As regarding the vital form – 129 are arborescent plants, of which – 45 tree species, 81 – shrub species and 3 liana species. The inferior plants are represented by around 3400 species of algae. The flora lacks endemic plant species, possessing relict tertiary and quaternary species and those representing the subendemic element. Depending on the floristic richness, the ecosystems are organized as follows: forest (around 1000 species), meadow (around 650 species), steppe (around 600 species), petricolous (around 250 species) and aquatic and paludous species (around 160). More than 30 woody plant

species from the forests of Republic of Moldova represent important sources of wood and fruits, around 200 species are medical plants, and the majority of forest herbaceous species serve as food for wild herbivorous animals. The spontaneous flora is represented by around 163 plant species containing increased volatile oil and 700 – with fodder value. The diversity of fungi (mushrooms) from the natural ecosystems embodies 1357 species, including 557 species of macromycetes. From the total number of mushrooms species, only 70 are edible. A special group of Fungi kingdom is constituted by lichens that according to recent estimations encounter 196 species. The Red Book of Moldova (second edition) includes 118 plant species and 9 mushrooms species. Extremely endangered are some species of vascular plants and lichens. Lady's-slipper orchid (Cypripedium calceolus) and Water caltrop (Trapa natans) are included in the European Red Book (Cartea Roşie, 2001; ME, 2014a; IEG, 2011).

Fauna

Proceeding from the number of animal species populating the territory of the country reported to a unit area, Republic of Moldova is among the first countries in Europe. The diversity of animal world is explained by the biological and landscape variety, where at relatively small distances are located various types of ecosystems (forest, aquatic, steppe, meadow, rocky) and relief morphological structures (terraces, valleys, etc.). The territory of Republic of Moldova is bordering with the balcanic region and creates a transition zone between the elements of continental Asian steppe fauna and European forest-steppe (ME, 2014a).

The richness of fauna comprises about 14800 animal species, including: vertebrates – 461 species (mammals – 70 species, birds – 281 species, reptiles – 14 species, amphibians – 14 species, fishes – 82 species), invertebrates – 14339 species, including insects (about 12000 species). The forest ecosystems possess the highest ecological capacity for terrestrial vertebrate fauna (180 species), including 14 species of bats, that are included on the lists of protected species by international conventions and 106 bird species. The Red Book of Moldova (second edition) includes 116 fauna species, the reptiles being the most vulnerable ones (8 species - from the amount of 14 (57, 1%). Some fauna species inhabiting the territory of Republic of Moldova are included in the European Red Book: mammals – European mink (Mustela lutreola), European ground squirrel (Spermophilus citellus) and speckled ground squirrel (Spermophilus suslicus); birds – ferruginous duck (Aythya nyroca), greated spotted eagle (Aquila clanga), lesser kestrel (Falco naumani) and corn crake (Crex crex); reptiles – meadow viper (Vipera

ursini); fishes – streber (Zingel streber), Danube salmon (Hucho hucho) and Russian sturgeon (Acipenser gueldenstaedtii); insects – forest caterpillar hunter (Calosoma sycophanta) and great Capricorn beetle (Cerambyx cerdo) (Cartea Roşie, 2001; ME, 2014a; IEG, 2011).

Genetic resources

The Botanical Garden (Institute) of the Academy of Sciences of Republic of Moldova possesses a great gene pool of about 11000 species and is completed annually: 2517 – tropical and subtropical plants, 1150 – ornamental flower plants, 2000 – woody plants, 350 – nontraditional fodder plants, 300 – medicinal plants and 350 – aromatic herbs. The zoological collections from Republic of Moldova include about 182 bird species and 4700 insect species, the collections of fossil plants – 270 species, fossil animals – 500 species (1500 samples). The herbarium of the Botanical Garden is constituted from about 320000 samples of plants from different floristic regions. Unfortunately, due to tight funding, this heritage can be lost forever (Botanical Garden, 2010; ME, 2014a; IEG, 2011).

4.1.2. Ecosystems

According to the provenience and management system, the ecosystems of Republic of Moldova are grouped into three main categories: natural (forest, steppe, meadow, aquatic, paludous), agricultural (fruit-growing, vine-growing, vegetable-growing) and urban. According to location, there are terrestrial, aquatic and underground ecosystems (ME, 2014a; MENR, 2004).

Natural ecosystems

Forest ecosystems: comprise 28 different forest types, such as formations of pedunculate oak, sessile oak, pubescent oak, beech, flooded forest, black locust and many other varieties species, and covers an area of 365000 ha (11,4% of country territory) (Annex 6) and are spread as follows:

- The Northern region forests are highly fragmented and dominated mainly by English oak with cherry tree (90%) and oak with birch.
- In the Centre the forests are less fragmented than in the North, and the species composition is similar to that of Central-European leafy forests, including such

associations as: beech mixed with hornbeam, ash, maple and lime; durmast oak with hornbeam; English oak with hornbeam and monodominant durmast oak;

- The Southern region forests are built of monodominant sessile oak, sessile oak with European hornbeam, and of pendunculate oak with blackthorn;
- Areas covered by willow, poplar and oak and oak groves mixed with elm and poplar are spread along the Nistru and Prut Rivers basins;
- On the limestone slopes of Nistru and Prut Rivers were formed petrophyte forest ecosystems with an outstanding structure and composition, comprising oak groves with English oak mixed with European hornbeam, lime, ash, sycamore, field maple, and sessile oak with sycamore, ash, European hornbeam, and cherry (ME, 2014a; MENR, 2004; Moldsilva, 2015a).

The forest ecosystems flora is represented by 859 species, fauna – by 172 species of terrestrial vertebrates and 9000 species of insects (MENR, 2004).

Steppe ecosystems: are covering 12% of country territory and are represented by perennial grassy meadows, characterized by the domination of xerophyte plants, chernozem soils and dry and arid climatic conditions. The steppe ecosystems are grouped into: protosteppes, proper steppes and subdesert steppes.

The protosteppes are located at the bottom of the slopes with various exhibitions from Balti and Bugeac Steppes, and are represented by: Volga fescue (Festuca valesiaca), bunchgrass (Stipa capillata), narrow-leaved meadow-grass (Poa angustifolia) and arctic brome (Bromopsis inermis).

The dominators of the proper steppes are: Volga fescue (Festuca valesiaca), bunchgrass (Stipa capillata), caragana (Caragana mollis, Cragana frutex), dwarf Russian almond (Amygdalus nana), scalloped spirea (Spirea crenata), thymus (Thymus marschallianus) and wall germander (Teucrium chamaedrys).

The subdesert steppes occupy small areas in the South extreme of the republic and are represented mainly by King Ranch bluestem (Borhriochloa ischaemum), mugwort (Artemisia austriaca) and wall germander (Teucrium chamaedrys) (ME, 2014a).

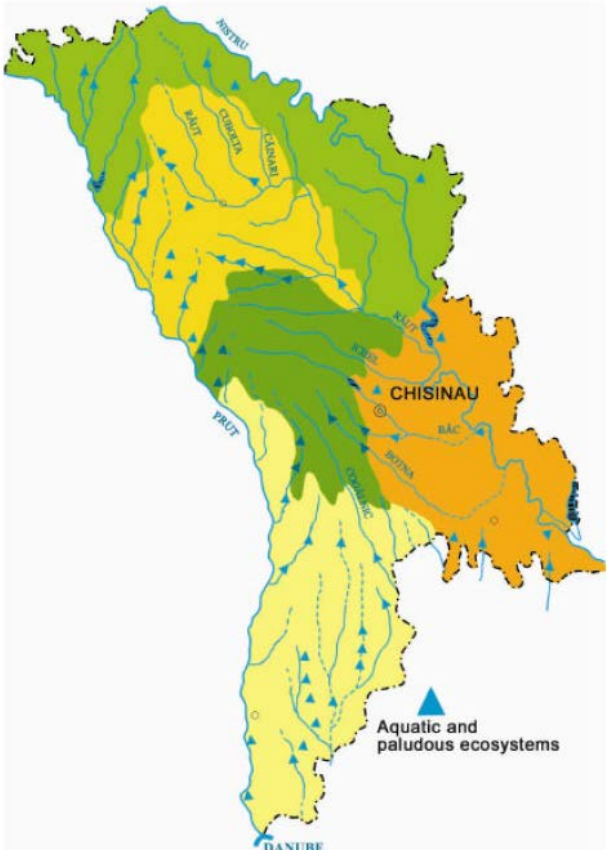
Meadow ecosystems: are the most modest ones, covering 3% of the total country area and located mainly in the regions of Nistru, Prut and Raut Rivers. They can be divided into two

main types: flood and non-flood. The flora is represented by about 650 species – meadow-grass (Poa), foxtail grass (Alopercus), mannagrass (Glyceria), sedges (Carex), medick (Medicago) and clover (Trifolium), of which 28 are rare. Fauna comprises 88 terrestrial vertebrates, including a number of species included in the Red Book of Moldova – corn crake (Crex crex), spotted crake (Porzana porzana), hen harrier (Circus cyaneus), European ground squirrel (Spermophilus citellus) and steppe polecat (Mustela eversmanni) (MENR, 2004).

Aquatic and paludous ecosystems: are spread over 95 000 ha (2, 8% of the total territory).

The hydrographic network consists of 3260 rivers and small rivers, with a total length of more than 160000 km (Figure 14).

Figure 14: Aquatic and paludous ecosystems



Source: MENR, 2004

The main rivers, natural and artificial lakes are represented in the below tables (Table 8, Table 9).

Table 8: Main Rivers

Name	Length (km)		Basin area (km²)	
	total	on the territory of RM	total	on the territory of RM
Nistru	1352	660	72100	19070
Prut	967	695	27500	7990
Răut	286	286	7760	7760
Bâc	155	155	2020	2020
Botna	152	152	1540	1540

Source: NBS, 2014c

Table 9: Main natural and artificial lakes

Name	Location (district)	Surface (km²)
Natural		
Beleu	Cahul	6,26
Manta	Cahul	4,50
Sălaș	Anenii Noi	3,72
Dracele	Cahul	2,65
Rotunda	Cahul	2,08
Nistrul Vechi	Căușeni	1,86
Roșu	Slobozia	1,16
Artificial		
Dubăsari	Dubăsari	67,5
Costești-Stânca	Râșcani	59,0
Cuciurgan	Slobozia	27,3
Ghidighici	Strășeni	6,8

Source: NBS, 2014c

The paludous ecosystems can be meet only in the immediate proximity to Nistru and Prut Rivers, and are represented by a quite extensive biodiversity, including 724 plant species – sweet flag (Acorus Calamus), marsh-marigold (Caltha Palustris), tiny mousetail (Myosourus minimus), water spearwort (Ranunculus lingua), filiform rush (Juncus Filiformis), etc. and 88 terrestrial vertebrate species – European otter (Lutra lutra), European mink (Lutreola lutreola), pygmy cormorant (Phalacrocorax pygmeus), squacco heron (Ardeola ralloides), great egret (Egretta alba), glossy ibis (Plegadis falcinellus), Eurasian spoonbill (Platalea leucorodia), mute swan (Cygnus olor), etc. (ME, 2014a).

Petricolous ecosystems: are located in the North and North-East part of the country, covering 23000 ha (0, 7 % of the total territory) and consist of unique formations – calcareous rocks and cliffs (toltres) and limestone. Three main types of vegetation are characteristic for the petricolous ecosystems:

1. Rocky English oak forests (Quercus robur) mixed with sessile oak (Quercus petraea), small-leaved lime (Tilia cordata), European hornbeam (Carpinus betulus), European ash (Fraxinus excelsior), etc., and a number of sub-mediterrannean species – cornelian cherry (Cornus mas), royal purple (Cotinus coggygria), burning bush (Euonymus verrucosa) etc.
2. Rocky pubescent oak forests (Quercus pubescens) mixed with English oak (Quercus robur), small-leaved lime (Tilia cordata), European hornbeam (Carpinus betulus) etc. The bush layer includes cornelian cherry (Cornus mas), burning bush (Euonymus verrucosa) and wayfarer (Viburnum lantana).
3. Sub-arid rocky forests with the dominance of pubescent oak occupying the rocky slopes as isolated spots (up till 30 ha), alternating with glades. The bush layer is usually formed of cornelian cherry (Cornus mas) and royal purple (Cotinus coggygria) (CIM, 2004).

The fauna of the ecosystem is relatively poor, comprising 38 species - the stone marten, mountain redstart, stone dove, mountain ouzel mountain linnet, beard dragon etc. (CIM, 2004).

Agricultural ecosystems

The agricultural ecosystems cover 1951800 ha and are highly fragmented. They are possessing optimal conditions for 109 species of terrestrial vertebrates. A characteristic feature of the agro landscapes is the presence of protection curtains –contributing to the improvement of conditions for the cultivation of crops, increasing the ecological and biological capacity of the territory and regulating the ecologic equilibrium between the beneficial and harmful organisms, in the same time serving as shelter for many species of animals, including those useful for the agriculture (ME, 2014a).

Urban ecosystems

The total surface of urban ecosystems comprises 312100 ha, including 50000 ha – cities and municipalities and 262100 ha – rural areas. The public parks, botanical gardens, arboretums, zoos are the main locations for the conservation of biodiversity (ME, 2014a).

4.1.3. Natural protected areas

Republic of Moldova possesses 312 natural protected areas by the state (Table 10, Annex 7) combined into twelve categories, six being defined according to the classification of the IUCN (strict nature reserve (scientific reserve); wilderness area (natural reserve); national park; natural monument or feature; habitat/species management area; protected landscape/ seascape and protected area with sustainable use of natural resources). Three categories are outside IUCN classification and comprise dendrological garden, zoological garden and landscape architecture monument. Another category is established by the Ramsar Convention and includes wetlands of international importance. The biosphere reserve category is established by Unesco (ME, 2014a; IUCN, 2014).

Table 10: Protected natural areas

	Quantity	**Surface, ha**
Total	**312**	**194974,2**
Scientific reserves	5	19378,0
National parks	1	33792,1
Natural monuments	130	2907,2
Natural reserves	63	8009,0
Landscapes reserves	41	34200,9
Resource reserves	13	523,0
Areas with multifunctional management	32	1030,4
Dendrological gardens	2	104,0
Landscape architectural monuments	21	305,0
Zoological gardens	1	20,0
Wetlands of international importance	3	94705,5

Source: NBS, 2014c

4.1.3.1. Scientific reserves

On the territory of Republic of Moldova are located 5 scientific reserves, presenting a considerable natural and tourist value: "Pădurea Domnească" ("Royal Forest"), "Plaiul Fagului", "Codrii", "Prutul de Jos" and "Iagorlâc" (NBS, 2014c).

"Pădurea Domnească" ("Royal Forest"): situated in the North-Western part of Moldavian Plateau, the reserve was created in 1993 with the purpose to preserve the most representative forest, meadow and wetland natural complex, situated in the middle of Prut River. Other important objectives were the conservation and regeneration of rare plant and animal species, ecological recovery and restoration of the biodiversity of meadow ecosystems. The flora is composed of 31 species of rare plants, of which 12 are introduced in the Red Book of Moldova and 19 species with different degrees of endangerment are included in IUCN Red List of Threatened Species. The fauna is also rich and varied, including 47 species of mammals, 15 reptile and amphibian species and 159 bird species, of which 21 are included in the list of rare animals. A major importance within the reservation is attributed to aurochs which were reacclimatized in Moldova since 2005, when three aurochs (a male and two females) were brought from Poland reserves. The administration of reserve and the Glodeni district Council have initiated in 2008 the tourist route "Pe un picior de plai pe-o gură de rai", annually visited by 6000-7000 national and international tourists. In addition to the above listed attractions, a number of unique sights are contributing to the outstanding value of the reservation: Landscape reserve "The Hundred Knolls" (a unique, still unexplained phenomenon in the space between Nistru and Prut Rivers – 1600 ha covered by over 3500 mounds of various shapes, with height over 30 m and a length from tens to hundreds of meters), "Buteşti" Gorge (a rock pierced by grottoes and caves that served as shelters for animals during the ice age period and for humans in the prehistoric period, where discovered fossils of cave bears, tigers, lions, mammoths and bisons), "Cobani" Coral Reef, "Stânca Mare" Reef (a natural fortress populated by people in the stone age), Grey herons colony "Country of Grey Herons" (a unique colony of herons nesting on oaks) and Secular Oaks (123 ha of secular oaks exceeding the age of 250 years and the height of 35 m) (Moldsilva, 2015b).

Figure 15: Padurea Domneasca landscapes

Source: e-excursii.com; elenabraga.com

<u>"Plaiul Fagului"</u>: situated in the North-Western part of Central Codrii region, the reserve was created with the same objective of conservation, regeneration and environmental recovery of one of the most picturesque and representative forest ecosystem. The flora comprises 909 species, including 645 vascular plant species, 151 mushroom species, 48 species of lichens and 65 moss species. From the amount of 270 species considered rare in Moldova, the reservation possesses 82. The wood fern (Dryopteris austriaca), perennial honesty (Lunaria rediviva), sidebells wintergreen (Orthilia secunda), round-leaved wintergreen (Pyrola rotundifolia) and bird cherry (Padus avium) are plants that can be found only on the territory of reservation. The fauna records 49 species of mammals, about 142 bird species, 8 reptile species, 12 amphibians species and 65 species of invertebrate. Recently, the fauna was enriched with noble stag and fallow deer (Moldsilva, 2015c).

Figure 16: Plaiul Fagului landscapes

Source: ecology.md; newsmoldova.md

<u>"Codrii":</u> situated in the Central part of the country, is the oldest reservation, being founded in 1971. The vascular plants flora of the reserve includes more than 40% of all Moldova's flora species. On the relatively small area of the reservation are growing 18 species of lichens, 69 bryophyte species and 774 species of filum, ferns and angiosperms. Among the species included in the Red Book of Moldova can be found: Mediterranean bells (Nectaroscordum bulgaricum), narrow-leaved helleborine (Cephalanthera longifolia), white helleborine (Cephalanthera damasonium), perennial honesty (Lunaria rediviva), black pea (Lathyrus nige), cottongrass (Eriophorum latifolium), etc. Some rare species grow only on the territory of the reserve: marsh helleborine (Epipactis palustris), Peterwort (Hypericum tetrapterum), etc. The fauna is extremely rich, including 43 species of mammals from 9 orders, representing 67, 1 % of Moldova's mammal composition (Moldovenii, 2014; Moldsilva, 2015d).

Figure 17: Codrii landscapes

Source: moldovenii.md

<u>"Prutul de Jos":</u> situated in the South-Western part of the country, was founded in 1991, with the purpose to conserve and protect the biodiversity of aquatic and paludous ecosystems of Beleu Lake and pound surrounding it. There are recorded 270 vascular plant species and 241 animal species, including 34 species of mammals, 7 reptile species and 11 amphibian species. The number of bird species reaches 168, of which 33 are rare and 12 are endangered. In Beleu Lake are living 120 species of aquatic invertebrates. The icthtyofauna is represented by 42 fish species. On the territory of the reservation is located a very precious geological-paleontological monument – Văleni Ravines (ATRM, 2010a).

Figure 18: Prutul de Jos landscapes

Source: moldovenii.md; provincial.md; travelblog.md

“Iagorlâc”: situated on the left bank of Nistru River, was founded in 1988, with the purpose to conserve and study the ecological conditions characteristic to Nistru river waters and to create favourable conditions for the reproduction and preservation of rare species of plants and animals. From the total number of 649 vascular plants present on the territory of the reserve, 50 are rare. Fauna consists of more than 160 species (ATRM, 2010b).

Figure 19: Iagorlac landscapes

Source: prospect.md

4.2. National Park "Orhei" – pioneering Moldova's sustainable tourism development

12 July, 2013 can be considered as a fairly important day in the modern history of Republic of Moldova, as it marked the foundation of the first national park – National Park "Orhei" and the launch of the first ecotourist route, serving as an incentive for the creation of two other National Parks in the Middle Prut and Inferior Nistru areas. The ampleness of the event is even more notorious in the context of the fact that before, Moldova was the only European state without a National Park (CNP, 2014; ME, 2013a).

The National Park "Orhei" was founded with the aim to ensure, maintain, conserve and rationally use the biological diversity, the unique natural complexes, which are of great ecological and aesthetic importance, to fully and effectively use the recreational and economical capacities of natural resources within the "Codrii Orheiului" natural area, and to contribute to the minimization of the negative human impact on goods and protected areas (LEXDB, 2014).

The National Park is the result of a successful partnership between the Ministry of Environment, UNDP and Global Environment Fund.

4.2.1. General presentation of the National Park "Orhei"

The National Park "Orhei" is situated in the Center of Republic of Moldova (Orhei Codrii), 46 km North from the capital Chisinau (Figure 20), embodying 18 villages from 4 districts.

It covers a total area of 33792, 09 ha, including 19509, 51 ha – public state property, 4404, 87 – public local authorities property and 9877, 71 ha – private ownership territories.

Figure 20: Location of National Park "Orhei"

Source: NordNordWest, 2014

The National Park "Orhei", being an area of a distinct character, with a significant ecological, biological, cultural and aesthetical value, where the preservation of this traditional integrity is vital, is pursuing the accomplishment of the following objectives:

- Conservation and protection of geographical landscapes, geomorphologic objects, flora, fauna, historical and cultural monuments for scientific, cognitive, recreational and economic purposes;
- Creation of adequate conditions for tourism and recreation;
- Development and application of scientific conservation methods of natural objects and complexes in terms of their use for recreational purposes;
- Monitoring and research of cultural and natural heritage on the territory of the Park;
- Popularization of knowledge regarding the environmental protection, environmental education and training of population;
- Sustainable use of natural resources within the limits permitted by the legislation, respecting the carrying capacity with the purpose of natural ecosystems and biological diversity conservation;

- Maintenance of traditional management approaches to biodiversity and landscape conservation, as well as the saving and maintenance of the cultural values;
- Promotion of sustainable economical development and compatible with the conservation goals, that can contribute to local and national economies;
- Development of collaboration on local, national, regional and international levels in the context of the undertaken tasks (LEXDB, 2014).

As regarding the territorial structure, the National Park "Orhei" is divided into four great management zones:

1. Zone A – full and strict protection area, covering 992, 4 ha. It comprises unique natural areas that retain their character and natural influence, located outside of the permanent human settlements, and serve as a natural storehouse for the genetic fund of local flora and fauna. In the zone is prohibited any economic or recreational activity, as it serves only for scientific research, previously coordinated with all corresponding authorities.
2. Zone B – protection and short-term recreation area, comprising 16836 ha. It is delimited for the species and habitats protection and maintenance of natural processes through a limited management, in the same time offering sightseeing and recreational options (tourist trails, places for bonfires, fuel reserves for visitors, tourist indicators, etc.). The B zone is subdivided into 2 subzones: B1 – area for interventions strictly related to the reconstruction and ecological rehabilitation of damaged surfaces, and B2 – area with limited management of natural resources, where the use of natural resources is not prohibited even for economic purposes, but always laying on preservation methods.
3. Zone C – long-term recreation area for services and infrastructure, comprising 723 ha. It is designed for the location of camps, hotels, motels, tourist resorts, tourist offices, information centers, catering units, and commercial and socio-cultural units.
4. Zone D – sustainable economic development area, comprising 15240, 69 ha. It is designed for the practice of economic activities which do not contravene to the management objective of the Park, such as: cultivation of traditional plants characteristic to the zone by using biological methods for pest control, applying the fertilizers in strict compliance with technological and sanitary rules; functioning of different units based on the use of non- pollutant technologies, respecting the environment protection regulations (LEXDB, 2014, UNDP, 2010-2011).

4.2.2. Tourist routes within the National Park "Orhei"

Within the National Park "Orhei" were developed six routes:

1. Circular Route around the National Park "Orhei" (Figure 21) – comprises the entire territory of the Park and makes connections with the other 5 routes or their segments, with the possibility to reach any attraction in the National Park within 15 minutes. The main natural attractions are represented by the natural-cultural reserve "Old Orhei", Trebujeni landscape reseve, Curchi forest, old parks (Ivancea, Donici, Piatra), geological monuments (Pocşeşti, Donici), secular trees and „Codru forest". „Old Orhei" complex, „A. Donici" house museum (Donici), Lazo family home (Piatra), museum of folk crafts (Ivancea), museum of native land (Orhei), antique Dacian fortresses and land walls (Trebujeni, Ivancea), medieval circular fortress from XIV cent. (Lucaseuca), Sehral-Cedid Tatar fortress from XIII cent, more than 100 archeological monuments (caves, human settlements, etc.), Curchi, Tabara, Nicolaeuca, Ţigăneşti and other 18 churches from medieval times, as well as numerous aristocratic mansions are among the main attractions of this route (Moldsilva, 2014).

Figure 21: Circular Route around the National Park "Orhei"

Source: Moldsilva, 2014

2. Route "The Monastic Trail" Tiganesti and Tabara Monasteries (Figure 22) – among its main attractions are: Ţigăneşti monastery, founded in 1725, surrounded by the natural frame of Ţigăneşti landscape reserve comprising 680 ha and located on the slopes of an immense valley of Ikel shaped like an amphiteatre, village Tabăra and Monastery „Dormition of the Virgin" (Moldsilva, 2014).

Figure 22: Route "The Monastic Trail" Tiganesti and Tabara Monasteries

Source: Moldsilva, 2014

3. Route Curchi Monastery – Mana – Donici – Lupa Recea – Vatici (Figure 23) – embodies such attractions as: Curchi monastery founded by Stephan the Great in 1773, the Curchi forest with valuable secular oak trees, and rare species of flora and fauna, with trees exceeding 2 m in diameter and 20 m in height. Donici village, founded in 1436 and being the place of birth of Alexandru Donici (1806-1865) – the most famous Moldovan fabulist and a classic of Romanian literature, is surrounded by wooded hills reaching a height of over 243 meters. The church "Dormition of the Virgin" and the villages Lupa Recea and Vatici, preserve the layout of a traditional Moldovan village (Moldsilva, 2014).

Figure 23: Route Curchi Monastery – Mana – Donici – Lupa Recea – Vatici

Source: Moldsilva, 2014

4. Forest Route Selişte – Camenca (Figure 24) – emphasizes the unique natural value of National Park "Orhei" through its old oak Forests, over 700 species of vascular plants, including 51 rare plant species, 26 species included in the Red Book of Republic of Moldova, 109 species of birds and 41 species of mammals (Moldsilva, 2014).

Figure 24: Forest Route Selişte – Camenca

Source: Moldsilva, 2014

5. Route through Ivancea Forest (Figure 25) – the forest in renown for its favorable environmental conditions and natural resources used in health treatment since the 1970s and rare species of flora and fauna. Handicrafts Museum is another tourist attraction within the route (Moldsilva, 2014).

Figure 25: Route through Ivancea Forest

Source: Moldsilva, 2014

6. Route through Cultural-Natural Reserve "Old Orhei" (Figure 26) – the reserve is located in a historical area with around 20 archeological sites, a cave complex, and traditional architectural and ethnographic objects well-known abroad. Brăneşti Wine Cellars are another important attraction, covering a distance of 58 km, at a depth of 60 m under the ground and an area of 75 ha (Moldsilva, 2014).

Figure 26: Route through Cultural-Natural Reserve "Orheiul Vechi"

Source: Moldsilva, 2014

The developed routes within the National Park „Orhei" are providing the possibility to enjoy the full spectrum of the tourist attractions spread over the entire territory of the Park (Annex 8).

4.3. Cultural-natural Reserve "Old Orhei" – the core of the greater Natural Park "Orhei"

The cultural-natural Reserve "Old Orhei" represents a complex of historical-cultural and natural-landscape monuments of national and international interest, lying over 11064, 56 ha (Figure 27). It is situated at a distance of 50 km from capital city Chisinau, in the Central-East part of the Moldavian Plateau, along the Raut River. The site is situated on the connection of forest and steppe ecosystems, being part of Orhei Codri, a historical-geographical unit that possessed well-shaped traditions since ancient times and which are preserved until nowadays. The Reserve comprises historical-cultural assets (archeological sites, rupestral complexes, vernacular architecture complexes, and ethnographic sites), traditional settlements (Trebujeni, Butuceni, Morovaia villages), natural heritage (geological, landscape, flora and fauna complexes), terrestrial and aquatic surfaces where are practiced agricultural, industrial and tourist activities (LEXBD, 2009; Postică et al, 2010).

In functional terms, the Reserve combines eight types of landscape: agricultural (traditional agricultural activities); habitat (organization and formation of traditional settlements); sacral (religious-monastic activities, valorization of rupestral monastic complexes); recreational (rest and spiritual harmony, aesthetic enjoyment); traditional occupations (hunting, fishing, cattle grazing, collection of edible and medicinal plants); industrial (exploitation of stone mines, placement of production enterprises within the

underground mines); preserved (preservation of informational rural aspect, conduction of scientific researches) and memorial (preservation of intangible heritage) (LEXDB, 2009).

In cultural terms, the Reserve comprises four landscape types: historical-geological (gorges, cliffs, karsts); historical-archeological (prehistoric, ancient and medieval archeological vestiges); rural (traditional peasant culture and architecture) and monastic (rupestral monastic culture and architecture) (LEXDB, 2009).

Figure 27: "Old Orhei" Panorma

Source: orhei.net

The originality and uniqueness of the "Old Orhei" landscape is clearly illustrated by its flora, fauna and ecosystems. The natural ecosystems are represented by forest, steppe, meadow, petricolous and aquatic ecosystems and the antrophogenic are represented by agrocoenoses and villages.

The forest ecosystems are represented by four compact bodies (Mihăilaşa, Selitra, Rotunda, Ţiganca). Steppe ecosystems are fragmentary located on the old Nistru River courses. The meadow ecosystems are present in the main riverbed of Raut River. Paetriculous ecosystems are situated on the calcarous slopes of Basarabean. Aquatic ecosystems are present in the Raut riverbed, and the agrocoenoses are situated on the chernozem soils from the fluvial terraces (Postică et al, 2010).

Flora and fauna

The fauna present within the Reserve comprises over 500 species of superior vascular plants, of which 66 are rare and 5 are endangered. The forest sector comprises zonal mesophile forests consisting from penduculate oak and hornbeam; azonal humid forests consisting from

white poplar and penduculate oak, elm and ash, and thermopile forests including ash, oak, maple and smoke tree. The steppe sector comprises over 100 superior xerophyle plants, of which 32 are protected by the state, 4 are included in the Red Book of Moldova, 1 – in the European Red List, 19 – in the Romanian Red List and 6 – in the Ukrainian Red Book. The mesophyte meadows are less diversified and include 74 species of spontaneous plants, of which only one is rare – mouse garlic (Allium angulosum). The petriculous flora is the more complex and comprises over 200 species of spontaneous plants, of which 15 are rare, including 7 – in the Red Book of Moldova, 2 species – in the European Red List and 1 – in the Romanian Red List. Among the vascular plants within the Reserve – 4 are of special value, being included in the European Red List – Genista tetragona Bresser, Schivereckia podolica, Pulsatilla grandis and Lilium martagon (Postică et al., 2010).

Fauna is another element that highlights the originality and uniqueness of the "Old Orhei" Reserve. Within the zone are registered 144 vertebrate species, of which 18 species of mammals, 91 bird species, 9 reptile species, 2 species of amphibians, 6 ichtiofauna species, and a great number ofinsects and mollusks spread in all ecosystems (Postică et al., 2010).

The landscape of "Old Orhei" Reserve is comprising numerous archeological vestiges, that denotes the human presence starting with Paleolithic period; the historical-cultural perpetuation from eneolitic until now; the interference of prehistorical, ancient and medieval civilizations; the historical-cultural dialog East-West and North-South; and human integration in the environment and its valorification with socio-economical and cultural purposes. Within the zone limits are documented 20 archeological sites, of which 2 are gig-sized polystratigraphic archeological complexes (Old Orhei and Butuceni); 13 polystratigraphic sites; and 5 smaller sites each comprising one cultural horizon. In the close proximity to the Reserve are identified 6 more archeological sites. The archeological site "Old Orhei" comprises practically all known cultural-chronological horizons on the territory of the country, starting with Paleolithic and ending with modern Age. In terms of stratigraphy, the sites are distinguished sites with 1 cultural horizon (5), 2 horizons (2), 3 horizons (5), 4 horizons (1), 5 horizons (1), 6 horizons (1), 7 horizons (3), 8 horizons (1) and 14 horizons (1). On the same territory are identified 77 unfortified settlements from different periods, 14 fortresses (12 geto-dacian and 2 medieval), 2 medieval towns and 7 necropolis (1- from Early Iron Age and 6 from Medieval period). In the same time, the area around the Reserve possesses 30 more unfortified settlements from different historical ages. In chronological terms, the archeological sites belong to following periods:

Paleolithic, Eneolitic, Bronze Age, Early Iron Age, Late Ancient period, Early Middle Ages, Late Middle Ages and Modern period (Nesterova, 2003; Postică, 1999; Postică et al., 2010).

Figure 28: Medieval Citadel of "Old Orhei", IV-VI cent.

Source: traveladventures.org, moldovenii.md

Figure 29: Turkish hamam, IV cent.

Source: moldovenii.md

The rupestral architecture is represented by more than 350 complexes, of which 100 are men-made with the purpose to create dwellings for monks and Christian hermits, and 250 karst caves, formed under the natural processes and used for sheltering or defense (Postică, 1999).

Figure 30: "Old Orhei" Rupestral complexes

Source: diez.md; orhei.net; ortodox.net; travelmaniacs.ro

The vernacular architecture within the Cultural-natural reserve "Old Orhei" emerging from XVII-XVIII centuries and reaching its peak in the middle of XX century, represents the expression of traditional Moldavian peasant household. Actually are registered and documented more than 160 households with vernacular architecture, representing a complex of unrepeatable heritage values of general human interest (Nesterova, 2003, Bârnea, 1986).

Figure 31: Vernacular architecture

Source: calatorie.md; moldovenii.md; orheiulvechi.moldip.info; touristhelpmd.com

The huge heritage concentrated within the Cultural-natural Reserve "Old Orhei" is the most popular tourist attraction of Republic of Moldova, possessing sufficient resources for its further development. Its integration into the greater National Park "Orhei" will create even more favorable conditions for the preservation of their values and for the overall sustainable development of the country.

4.4. Vulnerability of natural resources

One of the most important problems present on the actual agenda of Republic of Moldova is the harsh necessity to protect and conserve the natural resources, as it is noted a negative trend of reduction or even disappearance of a considerable share of biological diversity (flora, fauna, ecosystems).

The tendency is empowered by a wide range of factors, including:

- Irrational valorization and exploitation of soil, meadow and forest resources, especially at local level;
- The intensification of biodiversity loss processes, expressed by the disappearance of some fauna and flora species, and the movement of others in the category of critically endangered and vulnerable species;
- Poaching;
- Insufficiency of institutional framework and lack of financing resources for the sustainable management of the natural protected areas;
- Lack of national plans for protection of rare and endangered species;

- Unsatisfactory integration of the requirements regarding the biodiversity conservation in the economical and sectoral policy;
- High degree of agricultural valorization of the country, and as a result the disturbance of landscapes ecological equilibrium;
- Lack of administrations and management plans for the objects and complexes of natural protected areas;
- Small and insufficient taxes and fines for the compensation of the biodiversity damage, and as result the incapacity to repair the damages caused to natural ecosystems, flora and fauna;
- Pollution of habitats and the effects of climate change on biodiversity components;
- Unsatisfactory level of public information regarding the biodiversity field (ME, 2014a).

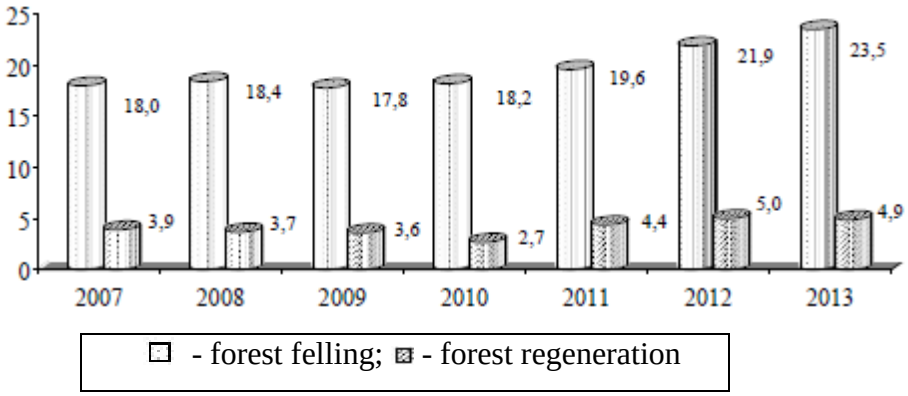
As a result, unfolds an active process of biodiversity erosion, expressed by the disappearance of some species; fragmentation of species habitats, blockage or constraining of migration routes and areas for breeding and feeding; reduction or elimination of some types of habitats or ecosystems from the transition zones (shelterbelts, tree alignments, wetlands); broad modification of structural configuration of hydrographic basins, associated with significant reduction of their capacity to diminish the negative pressure of antrophic factors; expansion and intensification of agricultural production systems by transforming natural or semi-natural ecosystems into arable lands and their improvement for the application of intensive production technologies (ME, 2014a).

The problems regarding environmental protection are aggravated even more by the security issues – the Transnistrian conflict leaded to the lost of control in all its aspects over the Eastern border of the country. During the armed conflict from 1992, significant areas of biodiversity have been destroyed and the environmental issues are still persisting, mainly because of the amount of approximately 20000 tons of arms, military equipment and ammunition belonging to Russian Federation being in a state of decomposition within the area of about 100 hectares (Pleshko).

The national forest fund is experiencing negative influences, because of its dispersion, fragmentation and irregular repartition on the territory of the country. The illegal tree felling is

dramatically decreasing the even so insufficient percentage of forest areas (one of the smallest from Central Europe), while the undertaken measures for forest regeneration are extremely low and can't attenuate the negative impact of increasing forest felling (Figure 32). Among another negative factors are: illegal cattle pasturing, the pollution with household building and other wastes, the partial respect of the forest regulation, practically absent care measures. All these deficiencies are mainly caused by the lack of efficient control, lack of an adequate forest management system and ignorance (low levels of ecological knowledge and culture) (NBS, 2014c; Pleshko; Moldsilva, 2015e; UN, 2002; WB, 2007)

Figure 32: The evolution of forest felling and regeneration (thousands ha)



Source: NBS, 2014c

The geographical location of Republic of Moldova is determining its limited water resources, because of low average of annual precipitations, causing droughts, especially in the Sountern part of the country. The Transboundary Rivers Nistru, Prut and Danube are the main water sources and their quality is directly influencing the entire environmental state of the country, the biodiversity and the health of population. Unfortunately, it is observed a slight worsening of the main rivers quality, while the smaller rivers are characterized by a high degree of pollution with ammonium ions, nitrogen, copper compounds, low biochemical oxygen demand and a low level of dissolved oxygen content in water. The excessive mineralization, pesticides, petroleum products, heavy metals, detergents and phenol are also contributing to the pollution of waters. As regarding the state of the surface waters, in accordance with hidrobiological elements, the main aquatic basins are still within the limits of I-IV quality class,

maintaining its biodiversity, while the quality of smaller rivers is low and tends to decrease even more (NBSc, 2014; FLUX, 2009; Pleshko; SHS, 2014a; SHS, 2014b).

The soils are representing the most important natural resources of Republic of Moldova, due to their social-economical importance. In the recent years, because of the increased pressure of the antrophic factor, and as result – the multiplication of erosion processes, loss of humus, salinization, excavation and chemical pollution the state of soils was considerably modified, decreasing its fertility. According to the data provided by the State Hydrometeorological Sevice, regarding the pollution of soils, on the territories from the scientific reservations and green areas, the maximum admitted concentrations are generally not exceeded, with small exceptions, while the soils used for agriculture, are particularly affected by a range of heavy metals and pesticides (Bratco, 2009; SHS, 2014c).

In the last decades, the natural factor as the main pollutant of the air has been overpassed by the atrophic factor, leading to bad ecological consequences. The level of air pollution in Republic of Moldova is influenced by mobile sources, stationary sources and transborder transfer of pollutants. The main sources of air pollution are: too long operation of vehicles, use of bad quality fuel, uses of coal and black oil without proper outlet filters and application of outdated technologies in the production sector. The pollutants emitted in atmospheric air by the road transport constituted 213000, 1 tonnes in 2013, registering the highest level after 2008 when is accounted for 224000, 1 tonnes and presenting a huge increase comparing to 2012 when it accounted 140000, 1 tonnes (Table 11) (NBS, 2014a, NBS, 2014b; HSH, 2014d).

Table 11: Detrimental substances emitted in atmospheric air by road transport (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013
Liquid and solid detrimental substances - total	**145,5**	**173,8**	**224,1**	**157,4**	**146,5**	**174,8**	**140,1**	**213,1**
Oxide carbon	105,0	126,7	159,1	106,2	102,8	125,0	107,6	154,9
Hidrocarbon	15,5	17,9	25,3	15,7	14,1	19,6	13,7	22,8
Dioxide nitrogen	18,4	19,7	28,7	18,7	14,9	16,9	12,9	23,5

Source: NBS, 2014a

As regarding the emissions of the pollutants in atmospheric air by stationary sources, in 2013 the amount constituted 15000, 6 tonnes, registering an increase compared to the 2010-2012 period when it balanced around 15000, 0 tonnes (Table 12).

Table 12: Emission of detrimental substances in atmospheric air by stationary sources by ingredients (thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013
Total	**19,6**	**16,8**	**16,7**	**15,7**	**15,5**	**15,0**	**14,8**	**15,6**
Solid	5,3	4,6	4,6	4,3	4,2	3,5	3,5	3,4
Gaseous and liquid	14,3	12,2	12,1	11,4	11,3	11,5	11,3	12,2
Dioxide sulphur	1,9	1,7	1,5	1,6	1,1	1,3	1,1	0,9
Oxide nitrogen	2,9	2,0	2,0	1,8	1,8	1,6	1,6	1,7
Oxide carbon	6,1	5,4	4,7	3,9	4,4	4,5	4,3	4,5

Source: NBS, 2014a

During the 2009 – 2014 period, the capital of the country – Chisinau (Center) and the second greatest municipality – Balti (North) registered the highest levels of pollution. The acid precipitations are frequently present on the territory of the Republic of Moldova, because of the destructive antrophic activity and are causing considerable damages to all ecosystems and to architectural monuments (Figure 33). Even if the economic recession from the last period leaded to the decrease of pollutant emissions from stationary sources (big factories), the apparition of new economic agents in the private sector is an obstacle on the way of the positive trend of pollution reduction (SHS, 2014d; NBS, 2014c)

Figure 33: Consequences of the acid rains

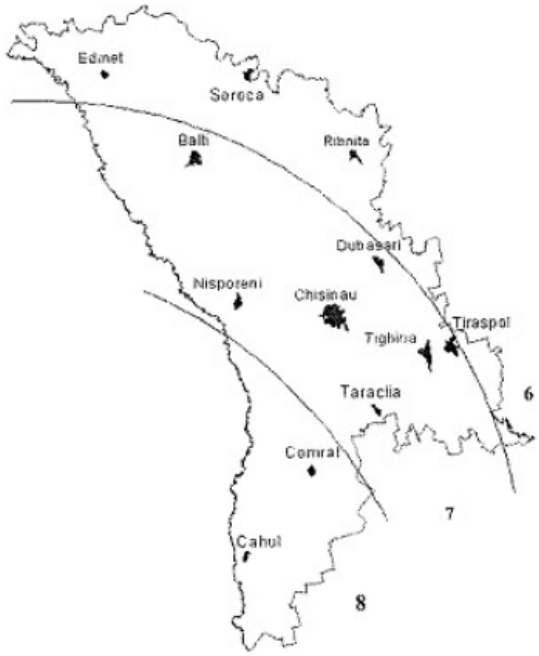
Source: SHS, 2014d

The accumulation of more than 30 mln tonnes of waste products (including pesticides with expired period of storage) and their storage on the road sides, banks of the rivers, ravines is another serious source of environmental pollution (NBS, 2014c; Pleshko).

Moldova is situated between two industrialized countries – Romania and Ukraine, and the transborder impact on the air is manifested by hotbed effect, depletion of ozone layer and acid rains (Pleshko).

Republic of Moldova is also exposed at such exceptional situations as: strong blizzards, storms, frosts, heavy rains, heavy rains with hail, heavy rains with hail and strong winds, lasting rains and as result - floods, droughts, landslides. In the same time, the Republic of Moldova is subject to high seismic risk, due to the proximity of Vrancea zone, located on the territory of Romania. In the recent 200 years, Moldova was affected by more than 200 earthquakes of 7-9 degrees that destroyed a great part of the architecture and even leaded to loss of human lives. The country is divided into three seismic zones, with six, seven and eight degrees of magnitute (Bobeica, 2009; Cernei, 2009; Drumea and Alcaz, 2009; NBS, 2014; Sofroni, 2010; XPRIMM, 2011).

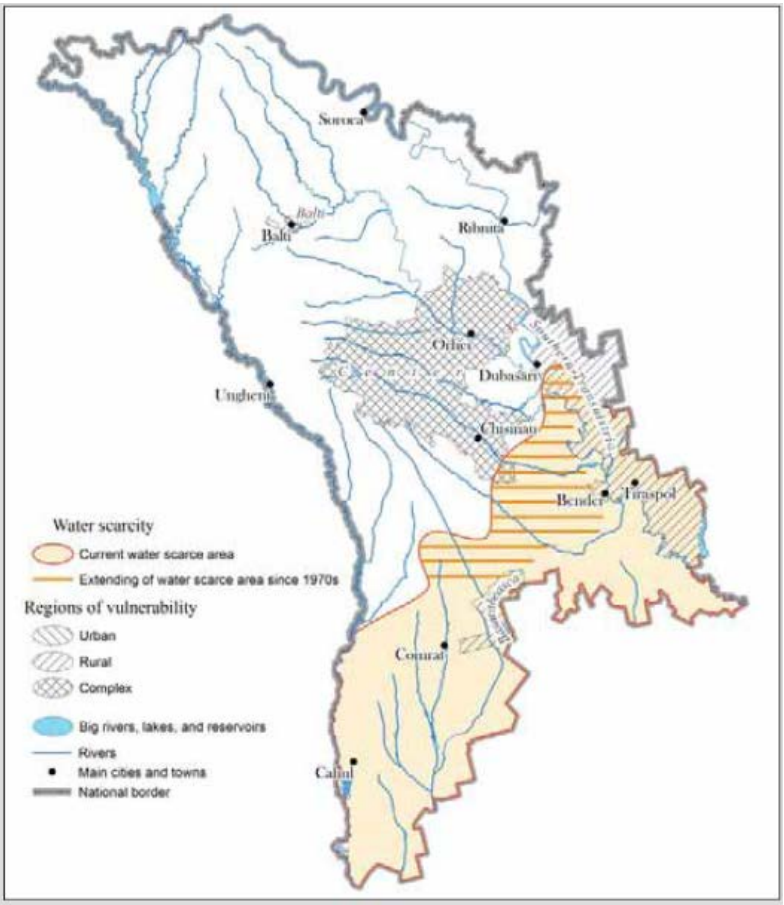
Figure 34: Seismic zoning of Republic of Moldova



Source: XPRIMM, 2011

Unfortunately, Republic of Moldova is one of the most disadvantaged and vulnerable countries from Europe and Central Asia in relation to climate change. It is supposed that the social-economical spending related to the associated natural hazards will increase more, as result of the increase in frequency of such phenomena. Only the floods from 2008 have caused an injury amounting $USA 120 millions. The biodiversity and ecosystems are expected to suffer more as result of the climate change. Shifts from semi-arid to arid lands and from meadow steppe to dry steppe formations are predicted. Another expecting scenario targets the turn of beech forests into oak and hornbeam. The even so modest water resources are expected to diminish more, as the basins of main Nistru and Prut rivers will reduce by 58 % by the end of the 21st century (Figure 35). The decline of wetland species is conditioned by soil salinization provoked by increasing aridity. All major natural habitats of the country are under high pressure and a negative trend of the introduction of more species in the Red Book is observed (ME, 2014b, UN, 2014b; UNDP, 2009).

Figure 35: Potential vulnerability to water scarcity



Source: UNDP, 2009

As regarding the actual conditions of ecosystems within the "Old Orhei" complex, generally they are preserving their original archaic character, as well as the ecological equilibrium between flora and fauna. The forest ecosystems are the best preserved, while the steppe ecosystems are under a heavy antrophogenic pressure, because of their openness for pastures and tourists. The decorative stone extraction has negatively influenced great segments of petriculous ecosystems. The factors that are threatening the "Old Orhei" heritage can be divided into two groups: natural (climatic factors – extreme temperatures, wind, heavy rains, etc.; floods; earthquakes, mud torrents; and landslides) and antrophogenic factors (pollution with household waste; acid rains; unauthorized extraction of decorative stone, sand and clay; unregulated agricultural exploitation of archeological sites; uncontrolled tourism and alpinism; tree felling; and unregulated reparation of vernacular architecture complexes (Postică et al., 2010).

Even if Republic of Moldova is still possessing important natural resources that can contribute to the development of tourism and further to the sustainable development of the country, the existing environmental issues are already strongly disrupting its evolution. The deterioration of ecosystems is already exercising negative influence on the overall competitiveness of the country and the major paradox consists in the fact that the great potential of ecotourism to contribute to the environmental sustainability is still ignored by authorities.

According to the Living Planet Report 2014, basing on the ecological footprint and biocapacity, Moldova is ranking the 90 position from 152 by global biocapacity per capita and 99 position by global footprint per capita (Annex 9). Although, according to the 2014 Environmental and Performance Index, Moldova is situated on the 74 position from 178 available, registering an improvement of the performance (Annex 10).

A strong intersectorial collaboration and an encouraging institutional and legislative framework is needed for a sustainable development of the priority sectors of the national economy, including tourism – which is directly dependent on the natural resources, that are the most affected by the climate change and destructive antrophogenic activities. In this context, the nature-based tourism appears to be the most appropriate form of tourism, able to contribute to the environmental, economic and social sustainability.

4.5. Tourism and sustainable development – an encouraging perspective

The United Nations General Assembly, in the adopted resolution "Promotion of ecotourism for poverty eradication and environment protection" emphasizes the positive impact that ecotourism can create for economy and society, by generating income, employment and education opportunities, as well as for environment by contributing to the conservation and protection of biodiversity and natural areas (UNWTO, 2013b).

In the context of Moldova's vast potential of natural resources, their valorization represents one of the most easy-reachable opportunities to achieve sustainable development, and tourism appears to be the most appropriate form of fulfilling the established objectives.

The development of nature-based tourism activities within the local communities and protected areas can generate numerous socio-economical benefits and positive impacts on the environment:

- ⇨ Job creation (directly in the tourism sector or in those related to it) and as result a decrease of immigration rate;
- ⇨ Stimulation of local economy by developing the infrastructure and tourist services (accommodation, catering, transport, recreational facilities, crafts and souvenirs products);
- ⇨ Increase of the standard of living (medical centers, drinkable water sources and other facilities for the host communities);
- ⇨ Stimulation of ecological agriculture development;
- ⇨ Stimulation of rural economy by creating or increasing the demand for agricultural products needed to ensure the tourist services;
- ⇨ Stimulation of development of the peripheral areas through capital injections;
- ⇨ Stimulation of the improvement of intercultural relations within regions (often tourists are looking to discover the traditions and habits of visited ethnographic regions, and the host community is stimulated to revive and preserve the popular traditions);
- ⇨ Promotion of cultural exchange between tourists and local communities;
- ⇨ Empowering of local communities;
- ⇨ Increasing awareness towards local culture and environment;
- ⇨ Increasing access to education;
- ⇨ Conservation and protection of geographical landscapes;
- ⇨ Biodiversity conservation, protection and multiplication;
- ⇨ Conservation and protection of historical and cultural heritage;
- ⇨ Development and application of scientific conservation methods (Manea, 2000).

Although, it is important to always keep in mind the thin line that lies between the positive impact of any form of tourism (including ecotourism) and its destructive capacity that can lead to catastrophic consequences, especially in environmental terms.

Unfortunately, the Moldavian ecosystems have been already affected by the unorganized and uncontrolled tourist activities, since tourist industry is in its incipient stage and the lack of regulations within the domain played a negative role.

On the other hand, the aligning to international standards, in the context of Moldova's European integration is already generating positive results.

According to Alexandru Rotaru, the manager of UNDP Programme for Development in Moldova, the creation of the first National Park "Orhei", will serve as a model of sustainable development and will contribute to the launch of other similar projects, since Republic of Moldova possesses all necessary requisites.

Among the already achieved results can be mentioned the creation and inauguration of the first eco-route, the extension of the "Wine Route" and a premiere for Republic of Moldova – the implementation of the project regarding the restoring of 472 ha of pastures within the region of National Park "Orhei", that will contribute essentially to the development of local communities (UNDP, 2014a).

Another important project launched within the National Park "Orhei" is the implementation of ecological agriculture that will contribute to the conservation of biodiversity and environmental protection, by creating adequate living conditions for flora and fauna in the area of organic farming. The preservation of the soil fertility through the method of crop rotation, quitting the use of pesticides and synthetic fertilizers will create various habitats for the wild animals living in the area. Among other benefits of the ecological agriculture can be distinguished: less contaminated agricultural products, water and air, due to neutralization of pesticides (herbicides, insecticides, fungicides); safe working conditions for farmers; real opportunities for small farmers to enter the attractive economic market, in the same time improving the food security; fertile and healthy soil, due to such biological practices like crop rotation, manual work, weeding, composting and mulching; reduced loss of nutrient elements, due to the use of organic fertilizers and the neutralization of chemical fertilizers, reducing the risk of nutrients loss; reduction of soil erosion, due to the maintenance of the soil covered as much as possible, by mulching or cultivation of cover crops; a better soil management, due to the increase of organic matter and improvement of it structure that will lead to a better water retention and storage in the soil, reducing the need for irrigation; superior nutritional quality of organic products, due to a high content of amino acids, vitamins, mineral salts and trace elements; minimization of agriculture's negative impact on global environmental issues – acid rain, global warming, biodiversity loss, desertification, reducing the emissions of gases responsible for the greenhouse effect (CO, methane and nitrous oxides); decrease of non-renewable resources use; contribution to the productivity increase of conventional farming systems (UNDP, 2011).

The elaboration and publication of the Catalogue of handicrafts produced in the National Park "Orhei" region, comprising information about more than 90 traditional craftsmen working in the field of: artistic wood carving, artistic stone carving, ironmongery, artistic crocheting and embroidery, artistic weaving, plant fiber weaving, manufacture of musical instruments and decoration of eggs will contribute to the preservation of local culture and traditions, in the same time increasing the attractiveness of the region and providing financial benefits for the host communities (UNDP, 2013).

In this context, the direct interdependence of tourism and sustainable development becomes obvious and an integrative approach towards the system will provide more and more opportunities for the extension of benefits. The number of tourists will increase, due to the preservation and diversification of natural tourism product, and the positive impact will strengthen even more the orientation towards sustainable development, as it contributes to the overall welfare of the community. The National Park will become more attractive for the foreign investors in the field of environmental protection and in this way will gain more opportunities to participate in projects related to the research of natural resources, environmental protection, greening of the slopes subjected to erosion, protection of ecosystems, etc.

Moreover, Moldova is awaiting the response of the UNESCO World Heritage Center, regarding the request to include the "Old Orhei Archaeological Landscape" in the UNESCO World Heritage List. The final decision will be taken in June, 2016 at the 40th Session of the World Heritage Committee and an eventual positive result will mark the historical moment, when Moldova will register its first own heritage object on UNESCO List, considerably increasing its tourist attractiveness.

And finally, after Moldova was declared by the Lonely Planet "the second off-the-beaten-path destination in the world" in 2013, this year brings great news regarding the fascinating evolution of the country that climbed 28 positions in the ranking of Adventure Travel and Trade Association (ATTA), being declared as the second most improved tourist destination in the world, especially in the category Hospitality and Security, increasing in this way the overall tourist attractiveness of the country (ATRM, 2015b).

4.6. Directions and measures for sustainable development achievement in the framework of a collective implication

The context of Moldova's orientation towards European Union and the first achieved results – the signing and ratification of EU – Moldova Association Agreement is opening unlimited opportunities for the sustainable development of the country, creates prerequisites for the cooperation in various fields and enables the aligning of political, economical and ecological systems to the European quality standards.

The country is facing serious challenges targeting various dimensions – economical, social, cultural, and environmental. As result the complexity of the problem is strongly hindering the recovery process. Although, numerous sets of actions oriented towards the sustainable progress have been already implemented and generated tangible results.

Republic of Moldova possesses a wide network of environmental quality monitoring stations (Annex 11), aiming to supervise the state of natural resources, in order to develop measures for their protection. Along with the Ministry of Environment and its subordinated bodies – State Hydrometeorological Service (SHS), Agency "Waters of Moldova", State Ecological Inspection (SEI) and the Agency for Geology and Mineral Resources (AGMR), a number of thematic offices – Biodiversity Office, Ozone Office, Biosecurity Office, Carbon Finance Office, and Pollution Prevention Office are functioning in order to improve the effectiveness of the projects aiming to protect the environment (UEA, 2012).

One of the most important realizations related to the environmental protection is the approval of the Climate Change Adaptation Strategy (CCAS) of the Republic of Moldova and the Low Emission Development Strategy (LEDS) of the Republic of Moldova until 2020.

Since the agricultural sector, water resources, forest sector, health sector, energy and infrastructure sectors are crucial for the environmental protection and sustainable development of the country, the aim of the CCAS is "to ensure a framework in which the social and economical development of Republic of Moldova is resilient to the future impacts of the climate change" (ME, 2013b: 51). The general objective is supported by several specific objectives: to improve the management and proliferation of information regarding the disasters and climate risks in Republic of Moldova; to strengthen the institutional framework, to ensure the efficient implementation of adaptation measures to climate change at national, sectoral and local levels;

to develop climate resilience by reducing the risks and facilitating the adaptation to climate change in priority sectors; to monitor and report the implementation of CCAS (ME, 2013b).

The CCAS has generated additional activities and projects - UNDP Project "Supporting Moldova's Climate Change Adaptation Planning Process", supported financially by Government of Austria (2013-2016) and EU Project "Clima East Program" (2013-2016), subdivided in two main components: (1) Clima East Policy Component and (2) Clima East Pilot Projects in seven partner countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine) (Tăranu, 2013).

The general objective of the LEDS consists in "providing a general policy framework for the national sustainable development that would lead with a high probability to the reduction of national emissions of greenhouse gases and would contribute to the increase of the actual level of mitigation commitments assumed by Republic of Moldova under the Copenhagen Agreement" (ME, 2012: 13-14). The specific objectives of the Strategy comprise: proposal of mitigation solutions that would provide economic opportunities; highlighting the barriers to transitions to the low-emissions economic development; consolidation and continuing of the existent projects/investments focused on the low-emissions economical development; prioritization of the identified NAMA (National Appropriate Mitigation Actions); proposal of additional mitigation actions requiring international financial support (supported NAMA) (ME, 2012).

The Biodiversity Strategy of Republic of Moldova is pursuing the general objective "to reduce the current rate of loss of biodiversity as a contribution to poverty alleviation and to benefit all forms of life on Earth" (ME, 2014c: 35). The specific objectives of the Strategy embody: ensuring of sustainable management and efficient institutional framework in the field ob biodiversity conservation; reduction of the pressure over the biodiversity for ensuring sustainable development; ensuring of measures for benefits increase as result of use of natural resources and ecosystem services; ensuring of scientific support for the biodiversity conservation, access to information and education promotion for the sustainable development (ME, 2014c).

As regarding tourism development, the Agency of Tourism of Republic of Moldova has developed the Strategy of Tourism Development "Tourism 2020", aiming "to boost the tourism activity in Republic of Moldova by developing the domestic and inbound tourism" (ATRM, 2014: 38). In order to achieve the major goal, the Strategy provides additional specific

objectives: improvement of the legal framework in accordance with the requirements of tourism market, adjusted to European standards; valorization of national tourism potential and the promotion of Moldova's image as a tourism destination; regional development of tourism; increase of level of specialized staff training and the level of tourist services; technological modernization of the tourist industry by using information and communication technologies (ATRM, 2014).

In the same context, the ATRM is emphasizing the need to incentivize the development of ecotourism, as it substantially contributes to the overall sustainable development.

It is obvious that the great objectives stated by the Ministry of Environment and the Agency for Tourism Development of Republic of Moldova are very complex, and the way towards their achievement will be perturbed by numerous internal problems, such as increased level of corruption and unstable political situation. In this context, the collective implication of all stakeholders appears to be the right tool for reaching the inclusive and sustainable development of Republic of Moldova.

The multilateral cooperation between the Government, the private sector and the society can generate substantial benefits, expressed in financial, social and environmental terms.

The former prime-mister of Moldova, Iurie Leanca, while pointing the attention on the role of Government to ensure favorable conditions for the achievement of aspirations of every person, underlines the incomparable role of private sector in the process of sustainable development attainment: "Community development, solving certain social and environmental issues, conservation of ecosystems – these objectives are hard or even impossible to manage without the participation of firms" (UNDP, 2014b: V).

In this context, the construction and enhancing of effective platforms needed for the dialogues between the public and private sector plays an essential role and the ensuring of transparency and mutual confidence can contribute to the correlation of common interests and objectives.

The adoption of Corporate Social Responsibility (CSR) represents an imperative of the actual reality, due to its inclusive character, comprising five dimensions: stakeholder, social, economic, voluntariness and environmental (Dahlsrud, 2006) and ensures the "achieving of sustainable profits, while reducing environmental footprint (planet), and balancing these objectives with people involved, from employees to overall community" (Mattera, Melgarejo,

2012: 37). Thus, the CSR can become an innovative key feature for the sustainable development of Republic of Moldova, as it is still a relatively new practice on the national market.

Unfortunately the heavy burden of Soviet Union legacy hampers the reorientation of Moldavian business practices towards sustainable ones, the high level of corruption and bureaucracy installed at all levels, being the main cause of poverty (Oprunenco et al., 2005).

Basing on the fact that the private sector is the major contributor to the GDP, the strengthening of its role as a factor of change is crucial in the context of a strident need to advance towards sustainable development and the Government is forced to undertake all type of measures in power to establish efficient partnerships with the private sector, and it refers not only to the central Government, but also to the regional and local.

Another major stakeholder is the civil society, represented by NGO's, that is also hardly underestimated, despite the fact that it contributes to numerous relevant events related to the sustainable development of the country , including the process of National Park "Orhei" establishment.

The local communities are on the emerging stage of awareness regarding their role in the processes that are taking place in the society and their direct implication in these processes is also an imperative for the overall sustainable development of the country. The improvement of the sense of identity and pride achieved as result of the preserved traditions will result into a more strong and unified society, aware of its rights and duties.

An integrative approach towards sustainability is the only right way to its achievement and Republic of Moldova would be considered as an equal member of the European society only when all necessary prerequisites will be accomplished.

Conclusions and recommendations

A high diversity of natural resources represents an undeniable opportunity for the developing countries, such as Republic of Moldova to achieve sustainability, covering economic, social and environmental dimensions, by valorizing their potential through tourism development.

In this context, the actual state of natural resources, including biodiversity, ecosystems and natural protected areas was investigated and the nature-based tourism was identified not only as a promising form of tourism, but as a primary one, due to the availability of outstanding unique natural sites. Although, the severe challenges related to the vulnerability of the environment, comprising the biodiversity and representative natural and cultural complexes, are creating serious obstacles for the serene perpetuation of the entire system.

The situation is aggravated by the issues existing in the field of tourism sector management and its overall deficiencies, expressed in unsatisfactory and outdated tourism legislation, weak infrastructure, insufficient and ineffective promotion, unqualified staff, reduced funding and lack of cooperation between involved stakeholders. As result, Republic of Moldova is positioned in the group of countries where tourism is underdeveloped and underestimated, having a minimal contribution to the GDP, and this situation can be explained by the low attention of Government towards the sector and by the fact that the great power of change possessed by tourism industry is still undiscovered and unrecognized.

Despite the above listed controversies, under the strict control and monitoring of European Union and other international partners, the recent period is marked by an increasing attention towards the tourism sector and the first positive outcomes are already palpable.

The creation of the first National Park “Orhei”, with the support of Ministry of Environment, UNDP and Global Environment Fund represents a crucial moment in Moldova’s process of reorientation towards sustainable development, since the project will generate numerous economic, social and environmental benefits.

After analyzing the already undertaken actions for the development of the Park, were discovered multiple positive impacts they had on the host communities and environment: employment opportunities, increase of the standard of living, stimulation of local economy, empowering of local communities, biodiversity conservation, traditions perpetuation and restoring and protection of natural, historical and cultural heritage. The quantitative and

qualitative achievements within the area will serve as incentives for the further development of the region, as well as for the creation of other similar projects.

Further, the collective implication of all stakeholders in the process of sustainability achievement was distinguished as the most relevant and convenient tool for the sustainable development. Governments and their subordinated entities, the private sector, the civil society and the host communities were identified as the major partners within the process.

In this context, after reaching the main objective of the research – to enlighten the opportunities and benefits that nature-based tourism can provide for the sustainable development of Moldova, was elaborated a small set of recommendations for the increase of awareness towards the country as a honorable ecotourism destination, taking into consideration the fact that ecotourists have more elevated expectations in relation to the overall satisfaction by the selected location:

- Development of an integrated ecotourism product;
- Increase of cohesion between all involved stakeholders (establishment of local, regional and national partnerships);
- Improvement of infrastructure (establishment of camping sites, gazebos, belvederes, information panels, etc.);
- Development and implementation of quality control systems within the tourism industry;
- Improvement of the existing and the development of new eco-routes;
- Supply of supporting material – maps, brochures, etc.;
- Establishment of tourist information points;
- Improvement of the professional abilities of staff involved in tourism services sector;
- Organization of frequent meetings with the local communities, in order to train them for the interaction with tourists;
- Implication of children in the tourism process (they can relate legends and stories about the most representative sites);
- Development of a more complex and efficient promotional strategy;
- Establishment of new international relationships (participation at international tourism related fairs and exhibitions).

References:

ADTM (Asociaţia de Dezvoltare a Turismului în Moldova) (2011) *Analiza diagnostic a sectorului turistic din R.Moldova pentru anii 2003-2010, page 18-20,* accessed at: http://turism.gov.md/files/files/ADTM_Analiza%20Diagnostic%20Turism%20final%20%281%29.pdf (20.01.2015)

ADTM (Asociatia de Dezvoltare a Turismului în Moldova) (2015) *Despre Noi,* accessed at: http://adtm.md/despre-noi/ (20.01.2015)

ANTREC (Asociatia Nationala de Turism Rural, Ecologic si Cultural din Moldova) (2015) *Despre noi,* accessed at: http://www.moldova-tourism.md/index.php/en/antrec-about (20.01.2015)

ANTRIM (Asociaţia Naţională pentru Turism Receptor din Moldova) (2015) *Despre Noi,* accessed at: http://antrim.md/despre-noi/ (20.01.2015)

ATRM (Agency of Tourism of Republic of Moldova) (2010a) *Puncte de atracţie turistică, Rezervaţia Ştiinţifică Hidrologică Prutul de Jos,* accessed at: http://www.turism.gov.md/index.php?pag=atractii&opa=view&tip=ecologic&id=181&start=&l= (20.01.2015)

ATRM (Agency of Tourism of Republic of Moldova) (2010b) *Puncte de atracţie turistică, Rezervaţia Ştiinţifică Iagorlâc,* accessed at: http://turism.gov.md/index.php?pag=atractii&opa=view&tip=ecologic&id=142&start=10&l= (15.03.2015)

ATRM (Agency of Tourism of Republic of Moldova) (2014) *Strategia de dezvoltare a turismului "Turism 2020",* accessed at: http://turism.gov.md/index.php?pag=sec&id=39 (30.04.2015)

ATRM (Agency of Tourism of Republic of Moldova) (2015a) *Regulamentul privind organizarea si functionarea Agentiei Turismului*, accessed at: http://www.turism.gov.md/index.php?pag=sec&id=51&l=ro (27.01.2015)

ATRM (Agency of Tourism of Republic of Moldova) (2015b) *Succesul Moldovei ca destinaţie turistică,* accessed at: http://www.turism.gov.md/?pag=noutati&opa=view&id=687&l= (25.05.2015)

ATKISSON GROUP official web-site (2014) *The real meaning of integrated sustainability*, accessed at: *http://atkisson.com/the-real-meaning-of-integrated-sustainability/* (18.01. 2015)

Ballantine L., Eagles P. F.J. (1994) *Defining Canadian ecotourists*, Journal of Sustainable Tourism, Volume 2, Issue 4, p. 210-214

Bârnea P. P. (1986) *Orheiul Vechi*, Chişinău: Timpul

Berno T., Bricker K. (2001) *Sustainable tourism development: the long road from theory to practice*, International Journal of Economic Development, Volume 3, Issue 3, p. 1-18

Björk P. (2000) *Ecotourism from a conceptual perspective, an extended definition of a unique tourism form*, International Journal of Tourism Research, Volume 2, Issue 3, p. 189-202

Blamey R. K., Braithwaite V. A. (1997) *A Social Values Segmentation of the Potential Ecotourism Market*, Journal of Sustainable Tourism, Volume 5, Issue 1, p. 29-45

Bobeică V. (2009) *Atenuarea riscurilor naturale în Moldova: Situaţia actuală şi politici recomandate*, Innoviews, p. 4-4

Boian I. (2009) *Hazardurile naturale şi dezvoltarea durabilă a Moldovei,* Innoview, p. 5-5

Boo E. (1990) *Ecotourism: The Potential and Pitfalls*, Washington, DC, World Wildlife Fund

Boo E. (1991) *Planning for ecotourism,* Parks, Volume 2, Issue 3, p. 4-8

Botanical Garden (Institute) of the Academy of Sciences of Republic of Moldova (2010) *What is Botanical Garden (Institute) of ASM,* accessed at: http://www.gradinabotanica.asm.md/en/node/103 (15.03.2015)

Bramwell B., Lane B. (1993) *Sustainable tourism: an evolving global approach,* Journal of Sustainable Tourism, Volume 1, Issue 1, p. 1-5

Bramwell B., Lane B. (2012) *Towards innovation in sustainable tourism research?,* Journal of Sustainable Tourism, Volume 20, Issue 1, p. 1-7

Bratco D. (2009) *Solul – principala bogăţie naturală a Moldovei şi hazardurile naturale,* Innoview, p. 8-9

Briassoulis H., Van Der Straaten J. (1992) *Tourism and the Environment: Regional, Economic and Policy Issues,* Dordrecht, Kluwer Academic Publishers

Buckley R. (2003) *The Practice and Politics of Tourism and Land Management*. In Buckley R., Pickering C., Weaver D.B. (ed) Nature-based Tourism, Environment and Land Management, p. 1-6.

Burford G., Hoover E., Velasco I., Janoušková S., Jimenez A., Piggot G., Podger D., Harder M.K. (2013) *Bringing the "missing pillar" into sustainable development goals: towards intersubjective values-based indicators,* Sustainability, Volume 5, Issue 7, p. 3035-3059.

Butler R. W. (1993) *Tourism – an evolutionary perspective*. In Nelson J.G., Butler R., Wall G. (ed) Tourism and Sustainable Development: Monitoring, Planning and Managing, Department of Geography Publication Series, p. 27-43.

Butler R. W. (1999) *Sustainable tourism: A state-of-the-art review*, Tourism Geographies: An international Journal of Tourism Space, Place and Environment, Volume 1, Issue 1, p. 7-25, accessed at: http://www.tandfonline.com/doi/pdf/10.1080/14616689908721291 (18.01. 2015)

Cantor M. (2011) *Development for the past, present and future: defining and measuring sustainable development*, Senior Honors Projects, accessed at: http://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1313&context=srhonorsprog (18.01. 2015)

Cartea Roşie a Republicii Moldova (Red Book of Republic of Moldova) (2001) second edition, Chişinău: Ştiinţa

Cater E. (2006) *Ecotourism as a Western Construct*, Journal of Ecotourism, Volume 5, Issue 1-2, p. 23-39

Ceballos-Lascuráin H. (1993) Ecotourism as a worldwide phenomenon. In Lindberg K. and Hawkins D. (ed), Ecotourism: A guide for planners and managers, North Bennington: The Ecotourism Society, p. 12-14

Ceballos-Lascuráin H. (1996) *Tourism, ecotourism and protected areas*, IUCN, Gland, Switzerland

CEE (Centre for Environment Education) (2007) *Sustainable Development: an introduction*, accessed at: http://www.sayen.org/volume-i.pdf (18.01. 2015)

Cernei G. (2009) *Prevenirea şi atenuarea hazardurilor naturale – prioritate absolută pentru Moldova*, Innoviews, p. 1-1

CIM (Centrul Informational de Mediu) (2004) *Ecosystems and habitats*, accessed at: http://cim.mediu.gov.md/second_frame.htm (15.03.2015)

Clarke J. (1997) *A framework of approaches to sustainable tourism*, Journal of Sustainable Tourism, Volume 5, Issue 3, p. 224-233

Clifton J., Benson A. (2006) *Planning for Sustainable Ecotourism: The case for Research Ecotourism in Developing Country Destinations*, Journal of Sustainable Tourism, Volume 14, Issue 3, p. 238-254

CNP (Consiliul Naţional pentru Participare) (2014) *Parcul Naţional Orhei a fost creat,* accessed at:
http://www.cnp.md/ro/grupuri-de-lucru/mediu/stiri/item/1704-parcul-national-orhei-a-fost-creat (01.02.2015)

Cocklin C. (1995) *Agriculture, society and environment: discourses on sustainability*, International Journal of Sustainable Development and World Ecology, Volume 2, p. 240-256

Cricova (2014) *History*, accessed at:
http://www.cricova.md/en/ (05.02.2015)

Dahlsrud A. (2006) *How Corporate Social Responsibility is defined: an analysis of 37 definitions*, Corporate Social Responsibility and Environmental Management, Volume 15, Issue 1, p. 1-13

Dallaire G., Colbert F. (2012) *Sustainable development and cultural policy: do they make a happy marriage?*, ENCATC Journal of Cultural Management and Policy, Volume 2, Issue 1, p. 6-11, accessed at:
http://www.encatc.org/pages/fileadmin/user_upload/Journal/01_Sustainable_Development_and_Cultural_Policy_VOL_2_ISSUE_1.pdf (18.01. 2015)

Dodds R. (2009) *Environmental Impacts of Ecotourism*, Annals of Tourism Research, Volume 36, Issue 4, p. 743-756

Drumea A., Alcaz V. (2009) *Administrarea hazardurilor naturale. Suntem gata pentru cutremurele de pământ puternice?*, Innoviews, p. 2-3

Eagles P. F. J., Cascagnette J. W. (1995) *Canadian Ecotourists: Who Are They ?,* Tourism Recreation Research, Volume 20, Issue 1, p. 22-28

Elkington J. (1998) *Cannibals with forks: the triple bottom line of 21st century business,* The Conscientious Commerce Series, New Society Publishers

Farrell T. A., Marion J. L. (2001) *Identifying and assessing ecotourism visitor impacts at eight protected areas in Costa Rica and Belize,* Environmental Conservation, Volume 28, Issue 3, p. 146-154

Fennel D. A., Smale B. (1992) *Ecotourism and Nature Resource Protection,* Tourism Recreation Research, Volume 17, Issue 1, p. 21-32

Fennel D. A. (2003) *Ecotourism: An introduction*, 2nd edition, Routledge

FLUX (2009) *Calitatea apei potabile din Moldova, o problemă ce necesită soluţionare urgentă,* accessed at:
http://www.flux.md/editii/200997/articole/8375/ (06.02.2015)

FPTM (Federatia de Promovare a Turismului din Moldova) official web-site (2015) *Scurta prezentare*, accessed at:
http://fptm.eu/scurta-prezentare/ (20.01.2015)

Furqan A., Mat Som A. P., Hussin R. (2010) *Promoting green tourism for future sustainability,* Theoretcihal and Empirical Research in Urban Management, Volume 8, Issue 17, p. 64-74

Garrod B., Fyall A. (1998) *Beyond the rhetoric of sustainable tourism?,* Tourism Management, Volume 19, Issue 3, p. 199-212

Gibson R.B. (2006) *Beyond the pillars: Sustainability assessment as a framework for effective integration of social, economic and ecological considerations in significant decision-making*, Journal of Environmental Assessment Policy and Management Vol. 8, Issue 3, p. 259–280, accessed at: http://disciplinas.stoa.usp.br/pluginfile.php/223053/mod_resource/content/1/526_sa_gibson.pdf (18.01. 2015)

Goodwin H. (1996) *In pursuit of ecotourism*, Biodiversity and Conservation, Volume 5, Issue 3, p. 277-291

Hall C. M., McArthur S. (1993) *Ecotourism in Antarctica and adjacent sub-Antarctic islands: development, impacts, management and prospects for the future*, Tourism Management, Volume 14, Issue 2, p. 117-122

Ham S. H., Weiler B. (2002) *Interpretation as the centerpiece of sustainable wildlife tourism.* In Harris R., Griffin T., Williams P. (ed) Sustainable tourism: a global perspective, p. 35- 44

Hansmann R., Mieg H.A., Frischknecht P. (2012) *Principal sustainability components: empirical analysis of synergies between the three pillars of sustainability*, International Journal of Sustainable Development & World Ecology, Vol. 9, Issue 5, p. 451-459, accessed at: *http://www.mieg.ethz.ch/docs/SustainabilityComponents.pdf* (03.02.2015)

Hawkes J. (2001) *The fourth pillar of sustainability: culture's essential role in public planning*, accessed at: http://www.culturaldevelopment.net.au/community/Downloads/HawkesJon(2001)TheFourthPillarOfSustainability.pdf (10.01.2015)

Higgins B. R. (1996) *The Global Structure of the Nature Tourism Industry: Ecotourists, Tour Operators, and Local Businesses*, Journal of Travel Research, Volume 35, Issue 2, p. 11-18

Horton L. R. (2009) *Buying Up Nature: Economic and Social Impacts of Costa Rica's Ecotourism Boom*, Volume 36, Issue 3, p. 93-107

Hunter C. (1997) *Sustainable tourism as an adaptive paradigm*, Annals of Tourism Research, Volume 24, Issue 4, p. 850-867

Hunter C. (2002) *Aspects of the sustainable tourism debate from a natural resources perspective.* In Harris R., Griffin T., Williams P. (ed) Sustainable tourism: a global perspective, p. 3-23

IISD (International Institute for Sustainable Development) (2010) *Sustainable Development: From Brundtland to Rio 2012*, accessed at: http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6_Background%20on%20Sustainable%20Devt.pdf (23.11.2014)

Ingram C. D., Durst P. B. (1987) *Nature Oriented Travel to Developing Countries*, Research Triangle Park, Southeastern Center for Forest Economic Research

IEG (Institutul de Ecologie şi Geografie) (2011) Starea mediului în Republica Moldova în anii 2007-2010 (Raport Naţional), accessed at: http://www.bp-soroca.md/pdf1/starea%20mediului.pdf (17.12.2014)

IUCN (The World Conservation Union) (1991) *Caring for the Earth. A Strategy for Sustainable Living*, accessed at: https://portals.iucn.org/library/efiles/edocs/CFE-003.pdf (23.11.2014)

IUCN (The World Conservation Union) (2014) *IUCN protected areas categories system*, accessed at: http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/ (23.03.2015)

Jacobson S. K., Lopez A. F. (1994) *Biological Impacts of Ecotourism : Tourists and Nesting Turtles in Tortuguero National Park, Costa Rica*, Wildlife Society Bulletin, Volume 22, Issue 3, p.414-419

Lane B. (1994) *Sustainable rural tourism strategies: a tool for development and conservation*, Journal of Sustainable Tourism, Volume 2, Issue 1-2, p. 102-111.

Laws E. (1995) *Tourist destination management: issues, analysis and policies*, Routledge, London

Leksakundilok A. (2004) *Community participation in ecotourism development in Thailand*, University of Sydney, Geosciences

LEXDB (Registrul Naţional de Stat al actelor jiridice al Republicii Moldova (2009) *Regulament de organizare şi funcţionare a Rezervaţiei Cultural-Naturale "Orheiul Vechi"*, accessed at: http://lex.justice.md/viewdoc.php?action=view&view=doc&id=332824&lang=1 (20.03.2015)

LEXDB (Registrul Naţional de Stat al actelor jiridice al Republicii Moldova (2014) *Regulament de funcţionare a Parcului Naţional „Orhei",* accessed at: http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=355414 (18.03.2015)

Lindberg K. (1991) *Policies for Maximizing Nature Tourism's Ecological and Economic Benefits*, World Resources Institute, accessed at: http://pdf.wri.org/policiesmaximizingnaturetourism_bw.pdf (29. 03. 2015)

Lindberg K., Furze B., Staff M., Black R. (1997) *Ecotourism and other services derived from forests in the Asia-Pacific Region: Outlook to 2010*, United States Department of Agriculture, Forest Service, accessed at: ftp://ftp.fao.org/docrep/fao/W7714E/W7714E00.pdf (17.12.2014)

Liu J. C. (1994) *Pacific Islands Ecotourism: A Public Policy and Planning Guide*, University of Hawaii, The Pacific Business Center Program

Liu Z. (2003) *Sustainable tourism development: a critique*, Journal of Sustainable Development, Volume 11, Issue 6, p. 459-475

Manea G. (2010) *Zone şi arii protejate şi valorificarea lor în turism,* Universitatea Bucureşti

Mattera M., Melgarejo A. M. (2012) *Strategic implications of Corporate Social Responsibility in hotel industry: a comparative analysis between NH Hotels and Meliá Hotels International*, Higher Learning Research Communications, Volume 2, Issue 4, accessed at: http://journals.sfu.ca/liu/index.php/HLRC/article/viewFile/85/85 (12.04.2015)

McMinn S. (1997) The challenge of sustainable tourism, Environment Systems and Decisions, Volume 17, Issue 2, p. 135-141

ME (Ministry of Environment of Republic of Moldova) (2012) *Low Emission Development Strategy (LEDS) of the Republic of Moldova until 2020*, accessed at: http://clima.md/lib.php?l=ro&idc=236& (24.03.2015)

ME (Ministry of Environment of Republic of Moldova) (2013a) *Primul Parc Naţional Orhei va contribui la dezvoltarea comunităţilor locale şi protejarea diversităţii biologice,* 12 July 2013, accessed at: http://mediu.gov.md/index.php/serviciul-de-presa/noutati/1399-primul-parc-national-orhei-va-contribui-la-dezvoltarea-comunitatilor-locale-si-protejarea-diversitatii-biologice (15.04.2015)

ME (Ministry of Environment of Republic of Moldova) (2013b) *Climate Change Adaptation Strategy*, accessed at: http://clima.md/lib.php?l=ro&idc=237& (02.05.2015)

ME (Ministry of Environment of Republic of Moldova) (2014a) *Strategia naţională şi planul de acţiuni privind diversitatea biologică a Republicii Moldova pentru anii 2014-2020*, accessed at: http://www.gov.md/sites/default/files/document/attachments/intr09_0.pdf (02.05.2015)

ME (Ministry of Environment of Republic of Moldova) (2014b) *Strategia de adaptare la schimbarea climei a Republicii Moldova până în anul 2020,* accessed at: http://www.clima.md/doc.php?l=ro&idc=237&id=3636 (02.05.2015)

ME (Ministry of Environment of Republic of Moldova) (2014c) *Strategia privind biodiversitatea biologică a Republicii Moldova pentru anii 2014-2020*, accesed at: http://www.gov.md/sites/default/files/document/attachments/intr09_0.pdf (02.05.2015)

Mebratu D. (1998) *Sustainability and sustainable development: Historical and conceptual review*. Environmental impact assessment review, Elsevier, Vol. 18, Issue 6, p. 493-520, accessed at: http://www.is.cnpm.embrapa.br/bibliografia/1998_Sustainability_and_sustainable_development_Historical_and_conceptual_review.pdf (17.12.2014)

MENR (Ministry of Ecology and Natural Resources), Biodiversity Office (2004) *National Report on the role of ecosystems as water suppliers in the Republic of Moldova*, accessed at: http://www.unece.org/fileadmin/DAM/env/water/meetings/ecosystem/Reports/Moldova_en.pdf (07.03.2015)

Milestii Mici (2013) *About the company*, accessed at: http://www.milestii-mici.md/en/about-us (15.03.2015)

Miltin D. (1992) *Sustainable development: A guide to the literature.* Environment and Urbanization, Volume 4, Issue 1, p. 111-124, accessed at: http://eau.sagepub.com.sci-hub.org/content/4/1/111.short (18.01.2015)

Moldovenii (2014) *Rezervaţia Ştiinţifică Codrii,* accessed at: http://www.moldovenii.md/md/section/539/content/10005 (20.04.2015)

Moldsilva (2014) *Touristic map of "Orhei" National Park*, accessed at: http://www.moldsilva.gov.md/pageview.php?l=ro&idc=221&t=/Prietenii-padurii/Turism& (20.04.2015)

Moldsilva (2015a) *Biodiversity*, accessed at: http://www.moldsilva.gov.md/pageview.php?l=en&idc=213&t=/Forest-life/Biodiversity/Biodiversity/ (15.02.2015)

Moldsilva (2015b) *Rezervaţia Naturală Pădurea Domnească,* accessed at: http://www.moldsilva.gov.md/pageview.php?l=ro&idc=319&t=/Despre-Agentie/Entitati-subordonate/Rezervatia-Naturala-Padurea-Domneasca/Citeste-mai-mult/Rezervatia-Naturala-Padurea-Domneasca/ (15.03.2015)

Moldsilva (2015c) Rezervaţia Naturală Plaiul Fagului, accessed at: http://www.moldsilva.gov.md/pageview.php?l=ro&idc=327&t=/Despre-Agentie/Entitati-subordonate/Rezervatia-Naturala-Plaiul-Fagului/Citeste-mai-mult (15.03.2015)

Moldsilva (2015d) Rezervaţia Naturală Codrii, accessed at: http://www.moldsilva.gov.md/pageview.php?l=ro&idc=323&t=/Despre-Agentie/Entitati-subordonate/Rezervatia-Naturala-Codrii/Citeste-mai-mult (15.03.2015)

Moldsilva (2015e) *Forest resources*, accessed at: http://www.moldsilva.gov.md/pageview.php?l=en&idc=180&t=/National-Forest-Land/Forest-Resources// (15.02.2015)

Moran D., Wackernagel M., Kitzes J., Goldfinger S., Boutaud A. (2008) *Measuring sustainable development – nation by nation*, Ecological Economics, Volume 64, Issue 3, p. 470-474, accessed at: http://www.sciencedirect.com/science/article/pii/S0921800907004430 (30.10.2014)

NBS (National Bureau of Statistics of the Republic of Moldova) (2004) *Rezultatele Recensământului Populaţiei din 2004*, accessed at: http://www.statistica.md/pageview.php?l=ro&idc=295& (03.05. 2015)

NBS (National Bureau of Statistics of the Republic of Moldova) (2014a) *Geografia şi mediul inconjurător,* accessed at: http://www.statistica.md/category.php?l=ro&idc=99& (03.05. 2015)

NBS (National Bureau of Statistics of the Republic of Moldova) (2014b) Turism, accessed at: http://www.statistica.md/category.php?l=ro&idc=293& (03.05. 2015)

NBS (National Bureau of Statistics of the Republic of Moldova) (2014c) *Resursele naturale şi mediul în Republica Moldova,* accessed at: http://www.statistica.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2014.pdf (03.05. 2015)

NBS (National Bureau of Statistics of the Republic of Moldova) (2015) *Populaţia şi procesele demografice, Indicatori cheie,* accessed at: http://www.statistica.md/category.php?l=ro&idc=103 (03.05. 2015)

NEF (New Economics Foundation) (2012) *The Happy Planet Index: 2012 Report. A global index of sustainable well-being,* accessed at: http://www.happyplanetindex.org/assets/happy-planet-index-report.pdf (14. 01. 2015)

Nesterova T. (2003) *Situl Orheiul Vechi: monumente de arhitectură,* Chişinău: Epigraf

Newsome D., Moore S. A., Dowling R. K. (2013) *Natural Area Tourism: Ecology, Impacts and Management,* 2nd ed., Channel View Publications

Newsome D., Rodger K. (2013) *Wildlife Tourism.* In Holden A., Fennel D. (ed) The Routledge Handbook of Tourism and the Environment, p. 345-358

Novikov V, UNEP/GRID-Ardenal (2007) *Environment and security issues in Moldova*, accessed at: http://www.grida.no/graphicslib/detail/environment-and-security-issues-in-moldova_f081# (22.03.2015)

Nurse K. (2006) *Culture as the fourth pillar of sustainable development*, accessed at: http://citeseerx.ist.psu.edu/viewdoc/download?rep=rep1&type=pdf&doi=10.1.1.183.5662 (15.12.2014)

Oprunenco A., Prohniţchi V., Rusu M. (2005) *Assessing Corporate Social Responsibility in Moldova*, accessed at: http://europeandcis.undp.org/guides/poverty/spd/ras/49_Assessment%20of%20CSR%20in%20Moldova.pdf (07.05.2015)

Orams M. B. (1995) *Towards a more desirable form of ecotourism*, Tourism Management, Volume 16, Issue 1, p. 3-8

Pickering C., Weaver D.B. (2003) Nature-based Tourism and Sustainability: Issues and Approaches. In Buckley R., Pickering C., Weaver D.B. (ed) Nature-based Tourism, Environment and Land Management, p. 7-10.

Pleshko T. M. (no date) (Environmental Policies and European Integration Division, Ministry of Ecology and Natural Resources) *Identification and description of key environmental and safety problems in the Republic of Moldova*, accessed at: http://www.envsec.org/publications/Identification%20and%20description%20of%20key%20environmental%20and%20safety%20problems%20in%20the%20Republic%20of%20Moldova_Eng.pdf (01. 05.2015)

Postică G. (1999) *Orheiul Vechi: buletin arheologic 1998*, Chişinău: Ruxanda

Postică G., Boboc N., Chirică L., Buzilă V., Lazu Ş., Corcimari N., Zubcov N. (2010) *Peisajul cultural Orheiul Vechi*, Chişinău: CEP USM

Prescott R.A. (2011) *The wellbeing of nations: a country-by country index of quality of life and the environment.* Washington DC: Island Press.

Rebega L.E. (2011) *Dezvoltarea durabila a turismului in judetul Sibiu,* Phd thesis in Geography, Universitatea din Bucuresti, Bucuresti, accessed at: http://www.unibuc.ro/studies/Doctorate2012Mai/Rebega%20Lucia%20Elena%20-%20Dezvoltarea%20durabila%20a%20turismului%20in%20judetul%20Sibiu/lucrare_rebega.pdf (27.09.2014)

Redclift M. R. (2006) *Sustainable development (1987-2005): an oxymoron comes of age,* Horizontes Antropológicos, Volume 12, Issue 25, p. 65-84, accessed at: http://www.scielo.br/pdf/ha/v12n25/a04v1225 (19.02.2015)

Robertson D. (1997) *Ecotourist's progress,* Organization and Environment, Volume 10, Issue 4, p. 432-440

Ross S., Wall G. (1999) *Ecotourism: towards congruence between theory and practice,* Tourism Management, Volume 20, Issue 1, p. 123-132

SFSO (Swiss Federal Statistical Office, SAEFL (Swiss Agency for the Environment, Forests and Landscape) & ARE (Swiss Federal Office for Spatial Development) (2004) *Monitoring Sustainable Development. MONET. Final Report. Methods and Results,* accessed at: http://www.nies.go.jp/db/sdidoc/publ.Document.50367.pdf (25.02.2015)

Sharpley R. (2000) *Tourism and Sustainable Development: Exploring the Theoretical Divide*, Journal of Sustainable Tourism, Volume 8, Issue 1, p. 1-19

SHS (State Hydrometeorological Service) (2014a) *Anuar: Starea calităţii apelor de suprafaţă conform indicilor hidrochimici pe teritoriul Republicii Moldova în anul 2013*, accessed at: http://www.meteo.md/monitor/anuare/2013/anuarapei_2013.pdf (30.04.2015)

SHS (State Hydrometeorological Service) (2014c) *Anuar: Starea calităţii apelor de suprafaţă conform elementelor hidrobiologice pe teritoriul Republicii Moldova în anul 2013,* accessed at: http://www.meteo.md/monitor/anuare/2013/anuarhidro_2013.pdf (30.04.2015)

SHS (State Hydrometeorological Service) (2014c) *Anuar: Starea calităţii solului pe teritoriul Republicii Moldova în anul 2013*, accessed at: http://www.meteo.md/monitor/anuare/2013/anuarsol_2013.pdf (30.04.2015)

SHS (State Hydrometeorological Service) (2014d) *Anuar: Starea calităţii aerului atmosferic pe teritoriul Republicii Moldova în anul 2013*, accessed at: http://www.meteo.md/monitor/anuare/2013/anuaraer_2013.pdf (30.04.2015)

Sofroni V. (2010) *Seismicitatea în Republica Moldova, Conferinţa ştiinţifico-practică: Spre viitor*

Swarbrooke J. (1991) *Sustainable Tourism Management.* CAB International, accessed at: https://www.cpp.edu/~ddwills/SCHOTO%20Workshop/STM.PDF (09.01.2015)

Taranu L. (2013) *Climate Change Adaptation Strategy of Republic of Moldova*, accessed at: http://www.unece.org/unece/search?q=climate+change+moldova&op=Search (07.04.2015)

TIES (The International Ecotourism Society) (2015a) *TIES Announces Ecotourism Principles Revision*, accessed at: https://www.ecotourism.org/news/ties-announces-ecotourism-principles-revision (05.05.2015)

TIES (The International Ecotourism Society) (2015b) *Who are eco-tourists?*, accessed at: https://www.ecotourism.org/book/who-are-eco-tourists (06.02.2015)

UEA (2012) *European Neighbourhood and partnership instrument – shared environmental information system: Republic of Moldova Country Report*, accessed at: http://www.zoinet.org/web/sites/default/files/publications/SEIS/enpi-seis-country-report_republic_of_moldova-final.pdf (22.02.2015)

UN (United Nations) (1992) *Rio Declaration on Environment and Development*, accessed at: http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163 (17.12.2014)

UN (United Nations) (2002) *Republic of Moldova: country profile,* Johannesburg Summit, accessed at: http://www.un.org/esa/agenda21/natlinfo/wssd/moldova.pdf (22.02.2015)

UN (United Nations) (2007) *Indicators of Sustainable Development: Guidelines and Methodologies*, Third Edition, accessed at: http://www.un.org/esa/sustdev/natlinfo/indicators/guidelines.pdf (23.12.2014)

UN (United Nations) (2012) *Report of the United Nations Conference on Sustainable Development*, Rio de Janeiro, Brazil, accessed at: http://www.uncsd2012.org/content/documents/814UNCSD%20REPORT%20final%20revs.pdf (22.02.2015)

UN (United Nations) (2014a) *Conference of European Statisticians Recommendations on Measuring Sustainable Development,* accessed at: http://www.unece.org/fileadmin/DAM/stats/publications/2013/CES_SD_web.pdf (22.02.2015)

UN (United Nations) (2014b) *Republic of Moldova: Environmental performance review*, third edition, accessed at: http://www.unece.org/environmental-policy/environmental-performance-reviews/enveprpublications/environmental-performance-reviews/2014/3rd-environmental-performance-review-of-the-republic-of-moldova/docs.html (05.03.2015)

UNDP (United Nations Development Programme) (2009) *Climate change in Moldova: Socio-economic impact and policy options for adaptation*, accessed at: http://www.md.undp.org/content/dam/moldova/docs/Publications/NHDR/NHDR_2009_english.pdf (11.04.2015)

UNDP (United Nations Development Programme) (2010-2011) *15 întrebări despre Parcul Naţional Orhei,* accessed at: http://www.md.undp.org/content/dam/moldova/docs/Publications/UNDP_MD_Brochure%2015%20questions%20about%20NP%20Orhei.pdf (27.03.2015)

UNDP (2011) *Dezvoltarea agriculturii ecologice în Parcul Naţional Orhei,* accessed at: http://www.md.undp.org/content/dam/moldova/docs/Publications/UNDP_MD_PAS_Ecological%20Agriculture.pdf (27.03.2015)

UNDP (2013) *Catalogue of handicrafts produced in the "Orhei" National Park region,* accessed at: http://www.md.undp.org/content/dam/moldova/docs/Publications/UNDP_MD_Catalog_Mesteri2013.pdf (27.03.2015)

UNDP (2014a) *Restabilirea păşunilor din Parcul Naţional Orhei cu sprijinul Uniunii Europene va contribui la îmbunătăţirea vieţii oamenilor din regiune,* accessed at: http://www.md.undp.org/content/moldova/ro/home/presscenter/pressreleases/2014/10/02/restabilirea-pasunilor-din-parcul-national-orhei-cu-sprijinul-uniunii-europene-va-contribui-la-imbunatatirea-vietii-oamenilor-din-regiune.html (27.03.2015)

UNDP (2014b) *Good corporate citizens: public and private goals aligned for human development*, National Human Development Report 2014, accessed at: http://hdr.undp.org/sites/default/files/engleza_final.pdf (19.02.2015)

UNEP (United Nations Environment Programme) (2005) *Making Tourism More Sustainable: A guide for Policy Makers*, accessed at: http://www.unep.fr/shared/publications/pdf/DTIx0592xPA-TourismPolicyEN.pdf (23.12.2014)

UNESCO (United Nations Educational, Scientific and Cultural Organization) (2015) *Millennium Development Goals,* accessed at: *http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/facts-and-figures/millennium-development-goals/8-mdgs/* (20.04.2015)

UNDSD (United Nations Division for Sustainable Development) (1992) *AGENDA 21, United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992, accessed at*:
https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf (23.12.2014)

UNWTO (2013a) *Sustainable Tourism for Development,* accessed at:
http://dtxtq4w60xqpw.cloudfront.net/sites/all/files/docpdf/devcoengfinal.pdf (26.01.2015)

UNWTO (2013b) *UN General Assembly: ecotourism key to eradicating poverty and protecting environment,* Press Release, accessed at:
http://media.unwto.org/en/press-release/2013-01-03/un-general-assembly-ecotourism-key-eradicating-poverty-and-protecting-envir (25.02.2015)

University of Texas at Austin (2001) *Moldova Maps,* accessed at:
http://www.lib.utexas.edu/maps/moldova.html (23.12.2014)

Valentine P. S. (1993) *Ecotourism and nature conservation: A definition with some recent developments in Micronesia,* Tourism Management, Volume 14, Issue 2, p.107-115

Wall G. (1994) *Ecotourism: old wine in new bottles?*, Trends, Volume 31, Issue 2, p. 4-9

Wallace G. N., Pierce S. M. (1996) *An Evaluation of Ecotourism in Amazonas, Brazil,* Annals of Tourism Research, Volume 23, Issue 4, p. 843-873

WCED (World Commission on Environment and Development) (1987) *Report of the World Commission on Environment and Development: Our Common Future,* accessed at:
http://www.un-documents.net/our-common-future.pdf (23.12.2014)

Wearing S., Larsen L. (1996) *Assessing and managing the sociocultural impacts of ecotourism: revisiting the Santa Elena rainforest project,* Environment Systems and Decisions, Volume 16, Issue 2, p. 117-133

Weaver D. B. (1997) *A regional framework for planning ecotourism in Saskatchewan,* The Canadian Geographer/Le Géographe canadien, Volume 41, Issue 2, p. 281-293

Weaver D. B., Lawton L. (1999) *Sustainable Tourism: A Critical Analysis,* Cooperative Research Centre for Sustainable Tourism, Research report series

Weaver D. B. (2002) *Hard-core Ecotourists in Lamington National Park, Australia,* Journal of Ecotourism, Volume 1, Issue 1, p. 19-35

Wells M. P. (1993) *Neglect of biological riches: the economics of nature tourism in Nepal,* Biodiversity and Conservation, Volume 2, Issue 4, p. 445-464

Wight P. A. (1993) *Sustainable ecotourism: balancing economic, environmental and social goals within an ethical framework,* Journal of Tourism Studies, Volume 4, Issue 2, p. 54-66
Wight P. A. (1996) *North American Ecotourists: Market Profile and Trip Characteristics,* Journal of Travel Research, Volume 34, Issue 4, p. 2-10

Wikimedia Commons (2009) *File: MoldRelief.jpg,* accessed at: https://commons.wikimedia.org/wiki/File:MoldRelief.jpg (11.11.2014)

Wilkins H. (2008) *The integration of the pillars of sustainable development: A work in progress,* McGill International Journal of Sustainable Development Law and Policy (JSDLP) Vol. 4, Issue 2, p. 163-188, accessed at: https://www.mcgill.ca/jsdlp/files/jsdlp/4_2_3_wilkins_2.pdf (23.12.2014)

WB (World Bank) (2007) *Integrating Environment into Agriculture and Forestry Progress and Prospects in Eastern Europe and Central Asia, Moldova: country review,* Volume 2, accessed at: http://www.worldbank.org/eca/pubs/envint/Volume%20II/English/Review%20MOL-final.pdf (17.03.2015)

Worldfolio (2015) *UNWTO chief urges G20 leaders to embrace tourism potential*, accessed at: http://www.theworldfolio.com/interviews/unwto-chief-urges-g20-leaders-to-embrace-tourism-potential/3527/ (25.05.2015)

WTO (World Tourism Organization) (1980) *Manila Declaration on World Tourism*, accessed at: http://www.atlaskasbah.com/download/omt_manille1980.pdf (09.10.2014)

WTTC (World Travel and Tourism Council) (2014) *Travel & Tourism Economic impact 2014: Moldova*, accessed at: http://www.wttc.org/-/media/files/reports/economic%20impact%20research/country%20reports/moldova2014.pdf (16.02.2015)

WWF (Worlds Wildlife Fund) (2014) *Living Planet Report 2014: species and spaces, people and places*, accessed at: http://ba04e385e36eeed47f9c-abbcd57a2a90674a4bcb7fab6c6198d0.r88.cf1.rackcdn.com/Living_Planet_Report_2014.pdf (08.02.2015)

XPRIMM (2011) *Studiu de fezabilitate pentru implementarea asigurărilor obligatorii de locuinţe şi terenuri agricole în Republica Moldova,* accessed at: http://www.1asig.ro/documente/Studiu_de_fezabilitate_a_implementarii_asigurarii_de_locuinte_si_a_terenurilor_agricole.pdf (05.03.2015)

Yale Centre for Environmental Law &Policy (2014) *2014 Environmental Performance Index: Full Report and Analysis*, accessed at: http://epi.yale.edu/files/2014_epi_report.pdf (08.02.2015)

Annexes

Annex 1: United Nations Millennium Development Goals

Goals	Detailed description
Goal 1: Eradicate extreme poverty and hunger	By 2015, reduce by half the proportion of people living on less than a dollar a day; By 2015, reduce by half the proportion of people who suffer from hunger.
Goal 2: Achieve universal primary education	By 2015, ensure that all boys and girls complete a full course of primary schooling.
Goal 3: Promote gender equality and empower women	Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015.
Goal 4: Reduce child mortality	By 2015, reduce by two thirds the mortality rate among children under five.
Goal 5: Improve maternal health	By 2015, reduce by three quarters the maternal mortality rate.
Goal 6: Combat HIV/AIDS, malaria and other diseases	By 2015, halt and begin to reverse the spread of HIV/AIDS; By 2015, halt and begin to reverse the incidence of malaria and other diseases.
Goal 7: Ensure environmental sustainability	By 2015, integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources; By 2015, reduce by half the proportion of people without sustainable access to safe drinking water; Achieve significant improvement in the lives of at least 100 million slum dwellers, by 2020.
Goal 8: Develop a global partnership for development	Develop further an open trading and financial system that is rule-based, predictable and non-discriminatory; Address the least developed countries' special needs; Deal comprehensively with developing countries' debt problems through national and international measures to make debt sustainable in the long term; In cooperation with the developing countries, develop decent and productive work for youth; In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries; In cooperation with the private sector, make available the benefits of new technologies - especially information and communication technologies.

Source: UNESCO, 2015, accessed at:

http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/facts-and-figures/millennium-development-goals/8-mdgs/

Annex 2: CSD Indicators of Sustainable Development

Theme	Sub-theme	Core indicator	Other indicator
Poverty	Income poverty	Proportion of population living below national poverty line	Proportion of population below $ 1 a day
	Income inequality	Ratio of share in national income of highest to lowest quintile	
	Sanitation	Proportion of population using an improved sanitation facility	
	Drinking water	Proportion of population using an improved water source	
	Access to energy	Share of households without electricity or other modern energy services	Percentage of population using solid fuels for cooking
	Living conditions	Proportion of urban population living in slums	
Governance	Corruption	Percentage of population having paid bribes	
	Crime	Number of intentional homicides per 100,000 population	
Health	Mortality	Under-five mortality rate	
		Life expectancy at birth	Healthy life expectancy at birth
	Health care delivery	Percent of population with access to primary health care facilities	Contraceptive prevalence rate
		Immunization against infectious childhood diseases	
	Nutritional status	Nutritional status of children	
	Health status and risks	Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis	Prevalence of tobacco use
			Suicide rate
Education	Education level	Gross intake ratio to last grade of primary education	Life long learning
		Net enrolment rate in primary education	
		Adult secondary (tertiary) schooling attainment level	
	Literacy	Adult literacy rate	
Demographics	Population	Population growth rate	Total fertility rate
		Dependency ratio	

Theme	Sub-theme	Core indicator	Other indicator
Demographics (continued)	Tourism		Ratio of local residents to tourists in major tourist regions and destinations
Natural hazards	Vulnerability to natural hazards	Percentage of population living in hazard prone areas	
	Disaster preparedness and response		Human and economic loss due to natural disasters
Atmosphere	Climate change	Carbon dioxide emissions	Emissions of greenhouse gases
	Ozone layer depletion	Consumption of ozone depleting substances	
	Air quality	Ambient concentration of air pollutants in urban areas	
Land	Land use and status		Land use change
			Land degradation
	Desertification		Land affected by desertification
	Agriculture	Arable and permanent cropland area	Fertilizer use efficiency
			Use of agricultural pesticides
			Area under organic farming
	Forests	Proportion of land area covered by forests	Percent of forest trees damaged by defoliation
			Area of forest under sustainable forest management
Oceans, seas and coasts	Coastal zone	Percentage of total population living in coastal areas	Bathing water quality
	Fisheries	Proportion of fish stocks within safe biological limits	
	Marine environment	Proportion of marine area protected	Marine trophic index
			Area of coral reef ecosystems and percentage live cover
Freshwater	Water quantity	Proportion of total water resources used	
		Water use intensity by economic activity	
	Water quality	Presence of faecal coliforms in freshwater	Biochemical oxygen demand in water bodies
			Wastewater treatment

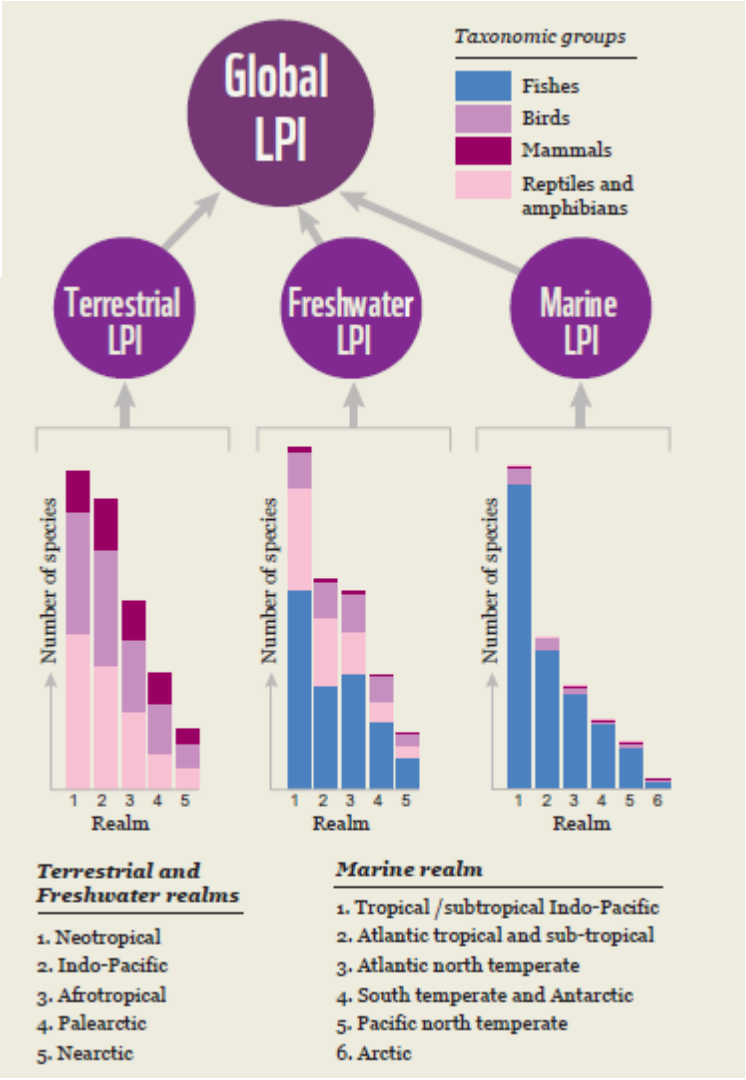
Theme	Sub-theme	Core indicator	Other indicator
Biodiversity	Ecosystem	Proportion of terrestrial area protected, total and by ecological region	Management effectiveness of protected areas
			Area of selected key ecosystems
			Fragmentation of habitats
	Species	Change in threat status of species	Abundance of selected key species
			Abundance of invasive alien species
Economic Development	Macroeconomic performance	Gross domestic product (GDP) per capita	Gross saving
		Investment share in GDP	Adjusted net savings as percentage of gross national income (GNI)
			Inflation rate
	Sustainable public finance	Debt to GNI ratio	
	Employment	Employment-population ratio	Vulnerable employment
		Labor productivity and unit labor costs	
		Share of women in wage employment in the non-agricultural sector	
	Information and communication technologies	Internet users per 100 population	Fixed telephone lines per 100 population
			Mobile cellular telephone subscribers per 100 population
	Research and development		Gross domestic expenditure on R&D as a percent of GDP
	Tourism	Tourism contribution to GDP	
Global economic partnership	Trade	Current account deficit as percentage of GDP	Share of imports from developing countries and from LDCs
			Average tariff barriers imposed on exports from developing countries and LDCs

Theme	Sub-theme	Core indicator	Other indicator
Global economic partnership (continued)	External financing	Net Official Development Assistance (ODA) given or received as a percentage of GNI	Foreign direct investment (FDI) net inflows and net outflows as percentage of GDP
			Remittances as percentage of GNI
Consumption and production patterns	Material consumption	Material intensity of the economy	Domestic material consumption
	Energy use	Annual energy consumption, total and by main user category	Share of renewable energy sources in total energy use
		Intensity of energy use, total and by economic activity	
	Waste generation and management	Generation of hazardous waste	Generation of waste
		Waste treatment and disposal	Management of radioactive waste
	Transportation	Modal split of passenger transportation	Modal split of freight transport
			Energy intensity of transport

Source: UN, 2007, accessed at:

http://www.un.org/esa/sustdev/natlinfo/indicators/factsheet.pdf

Annex 3: LPI-D Method



The bar charts show the relative number of species in each realm and by taxonomic group within each realm based on estimates taken from Wildfinder (WWF, 2006), the IUCN Red List (IUCN, 2013), Freshwater Species of the World (WWF/ TNC, 2013) and the Ocean Biogeographic Information System (OBIS, 2012). A weighted average method that places most weight on the largest (most species-rich) groups within a realm is used. Once the average trend for each realm has been calculated, a weighted average to calculate each system LPI is used, placing the most weight on the largest (most species-rich) realm within a system. The global LPI is the average of the terrestrial, freshwater and marine system LPIs (WWF, ZSL, 2014).

Source: WWF, 2014

Annex 4: Travel and Tourism Competitiveness Index 2015 Ranking

Rank	Country/Economy	Value
1	Spain	5.31
2	France	5.24
3	Germany	5.22
4	United States	5.12
5	United Kingdom	5.12
6	Switzerland	4.99
7	Australia	4.98
8	Italy	4.98
9	Japan	4.94
10	Canada	4.92
11	Singapore	4.86
12	Austria	4.82
13	Hong Kong SAR	4.68
14	Netherlands	4.67
15	Portugal	4.64
16	New Zealand	4.64
17	China	4.54
18	Iceland	4.54
19	Ireland	4.53
20	Norway	4.52
21	Belgium	4.51
22	Finland	4.47
23	Sweden	4.45
24	United Arab Emirates	4.43
25	Malaysia	4.41
26	Luxembourg	4.38
27	Denmark	4.38
28	Brazil	4.37
29	Korea, Rep.	4.37
30	Mexico	4.36
31	Greece	4.36
32	Taiwan, China	4.35
33	Croatia	4.30
34	Panama	4.28
35	Thailand	4.26
36	Cyprus	4.25
37	Czech Republic	4.22
38	Estonia	4.22
39	Slovenia	4.17
40	Malta	4.16
41	Hungary	4.14
42	Costa Rica	4.10
43	Qatar	4.09
44	Turkey	4.08
45	Russian Federation	4.08
46	Barbados	4.08
47	Poland	4.08
48	South Africa	4.08
49	Bulgaria	4.05
50	Indonesia	4.04
51	Chile	4.04
52	India	4.02
53	Latvia	4.01
54	Seychelles	4.00
55	Puerto Rico	3.91
56	Mauritius	3.90
57	Argentina	3.90
58	Peru	3.88
59	Lithuania	3.88
60	Bahrain	3.85
61	Slovak Republic	3.84
62	Morocco	3.81
63	Sri Lanka	3.80
64	Saudi Arabia	3.80
65	Oman	3.79
66	Romania	3.78
67	Montenegro	3.75
68	Colombia	3.73
69	Trinidad and Tobago	3.71
70	Namibia	3.69
71	Georgia	3.68
72	Israel	3.66
73	Uruguay	3.65
74	Philippines	3.63
75	Vietnam	3.60
76	Jamaica	3.59
77	Jordan	3.59
78	Kenya	3.58
79	Tunisia	3.54
80	Guatemala	3.51
81	Dominican Republic	3.50
82	Macedonia, FYR	3.50
83	Egypt	3.49
84	Azerbaijan	3.48
85	Kazakhstan	3.48
86	Cape Verde	3.46
87	Bhutan	3.44
88	Botswana	3.42
89	Armenia	3.42
90	Honduras	3.41
91	El Salvador	3.41
92	Nicaragua	3.37
93	Tanzania	3.35
94	Lebanon	3.35
95	Serbia	3.34
96	Lao PDR	3.33
97	Iran, Islamic Rep.	3.32
98	Rwanda	3.32
99	Mongolia	3.31
100	Bolivia	3.29
101	Suriname	3.28
102	Nepal	3.27
103	Kuwait	3.26
104	Guyana	3.26
105	Cambodia	3.24
106	Albania	3.22
107	Zambia	3.22
108	Swaziland	3.20
109	Gambia, The	3.20
110	Venezuela	3.18
111	Moldova	3.16
112	Senegal	3.14
113	Paraguay	3.11
114	Uganda	3.11
115	Zimbabwe	3.09
116	Kyrgyz Republic	3.08
117	Côte d'Ivoire	3.05
118	Ethiopia	3.03
119	Tajikistan	3.03
120	Ghana	3.01
121	Madagascar	2.99
122	Cameroon	2.95
123	Algeria	2.93
124	Gabon	2.92
125	Pakistan	2.92
126	Malawi	2.90
127	Bangladesh	2.90
128	Mali	2.87
129	Lesotho	2.82
130	Mozambique	2.81
131	Nigeria	2.79
132	Sierra Leone	2.77
133	Haiti	2.75
134	Myanmar	2.72
135	Burundi	2.70
136	Burkina Faso	2.67
137	Mauritania	2.64
138	Yemen	2.62
139	Angola	2.60
140	Guinea	2.58
141	Chad	2.43

Source: World Economic Forum, 2015, accessed at:
http://www3.weforum.org/docs/TT15/WEF_Global_Travel&Tourism_Report_2015.pdf

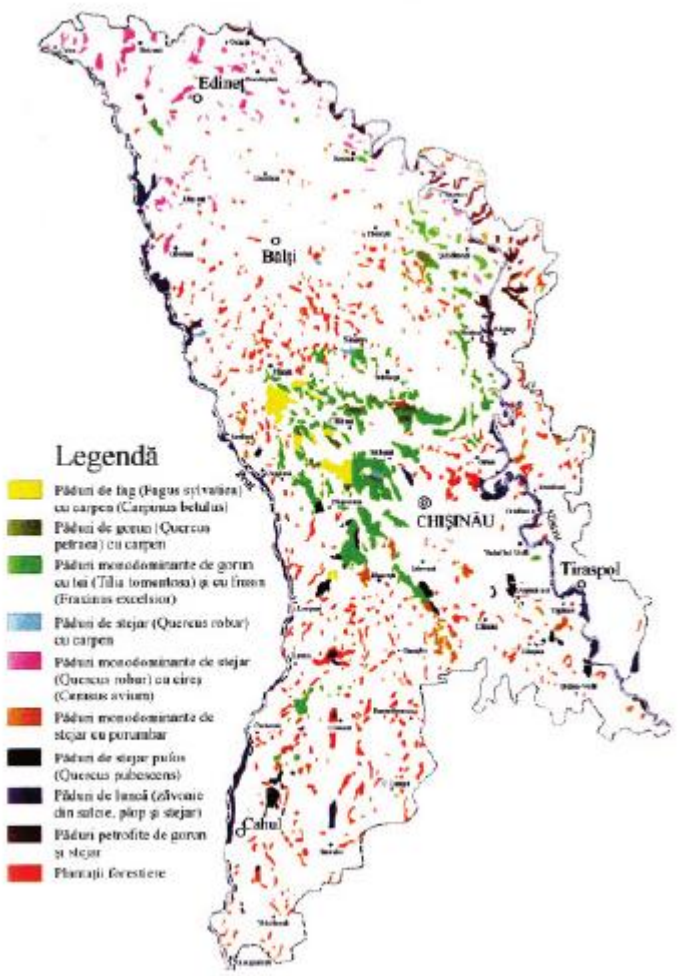
Annex 5: Moldova Travel and Tourism Competitiveness Index in Detail

	INDICATOR	VALUE	RANK/141
	Business Environment	**3.9**	**115**
1.01	Property rights†	3.2	126
1.02	Impact of rules on FDI†	3.9	108
1.03	Efficiency of legal framework settling disputes†	2.7	126
1.04	Efficiency of legal framework challenging regs.†	2.3	131
1.05	No. of days to deal with construction permits*	247	123
1.06	Construction permits cost (%)*	0.8	**43**
1.07	Extent of market dominance†	3.1	125
1.08	No. of days to start a business*	6	**27**
1.09	Cost to start a business (% GNI/capita)*	4.6	54
1.10	Effect of taxation on incentives to work†	2.9	121
1.11	Effect of taxation on incentives to invest†	3.2	107
1.12	Total tax rate (% profit)*	39.7	78
1.12a	Labour and contributions tax rate (% profit)*	30.2	122
1.12b	Profit tax rate (% profit)*	9.3	**34**
1.12c	Other taxes rate (% profit)*	0.2	**13**
	Safety and Security	**5.4**	**64**
2.01	Business costs of crime and violence†	4.9	**46**
2.02	Reliability of police services†	3.1	115
2.03	Business costs of terrorism†	6.1	**19**
2.04	Index of terrorism incidence*	7.0	51
2.05	Homicide rate*	7	85
	Health and Hygiene	**6.3**	**22**
3.01	Physician density per 1,000 pop.*	2.9	**34**
3.02	Access to improved sanitation (% pop.)*	87.0	75
3.03	Access to improved drinking water (% pop.)*	97.0	62
3.04	Hospital beds per 10,000 pop.	62.0	**17**
3.05	HIV prevalence (% pop.)*	0.7	96
3.06	Malaria incidence per 100,000 pop.*	S.L.	n/a
	Human Resources and Labour Market	**4.5**	**68**
	Qualification of the labour force	*4.8*	*96*
4.01	Primary education enrolment rate (%)*	87.9	105
4.02	Secondary education enrolment rate (%)*	88.2	73
4.03	Extent of staff training†	3.4	119
4.04	Treatment of customers†	4.1	99
	Labour market	*4.2*	*55*
4.05	Hiring and firing practices†	3.6	92
4.06	Ease of finding skilled employees†	2.9	129
4.07	Ease of hiring foreign labour†	4.0	73
4.08	Pay and productivity†	4.4	**34**
4.09	Female labour force participation (% to men)*	0.9	**27**
	ICT Readiness	**4.2**	**63**
5.01	ICT use for B2B transactions†	4.4	92
5.02	Internet use for B2C transactions†	4.2	84
5.03	Individuals using internet (%)*	48.8	70
5.04	Broadband internet subs. per 100 pop.*	13.4	52
5.05	Mobile telephone subs. per 100 pop.*	106.0	81
5.06	Mobile broadband subs. per 100 pop.*	47.2	**47**
5.07	Mobile network coverage (% pop.)*	99.0	65
5.08	Quality of electricity supply	4.4	81
	Prioritization of Travel & Tourism	**3.8**	**114**
6.01	Government prioritization of T&T industry†	3.6	133
6.02	T&T gov't expenditure (% gov't budget)*	3.2	71
6.03	Effectiveness of marketing to attract tourists†	3.0	136
6.04	Comprehensiveness of T&T data (0–120 best)*	88.0	**28**
6.05	Timeliness of T&T data (0–21 best)*	16.5	67
6.06	Country Brand Strategy rating (1–10 best)*	52.1	121

	INDICATOR	VALUE	RANK/141
	International Openness	**2.0**	**123**
7.01	Visa requirements (0–100 best)*	18.0	114
7.02	Openness of bilateral ASA (0–38)*	4.6	128
7.03	No. of regional trade agreements in force*	6.0	74
	Price Competitiveness	**4.8**	**64**
8.01	Ticket taxes, airport charges (0–100 best)*	73.3	91
8.02	Hotel price index (US$)*	n/a	n/a
8.03	Purchasing power parity*	0.5	51
8.04	Fuel price levels (US$ cents/litre)*	142.0	71
	Environmental Sustainability	**4.2**	**60**
9.01	Stringency of environmental regulations†	3.1	126
9.02	Enforcement of environmental regulations†	3.0	118
9.03	Sustainability of T&T development†	3.1	132
9.04	Particulate matter (2.5) concentration (μg/m^3)*	14.0	113
9.05	No. of envtl. treaty ratifications (0–27 best)*	17	104
9.06	Baseline water stress (0–5 worst)*	1.5	64
9.07	Threatened species (% total species)*	3.8	**45**
9.08	Forest cover change (% average per year)*	0.9	**8**
9.09	Wastewater treatment (%) *	34.2	**50**
9.10	Coastal shelf fishing pressure (tonnes per km^2)*	n/a	n/a
	Air Transport Infrastructure	**1.9**	**119**
10.01	Quality of air transport infrastructure†	3.7	101
10.02	Airline dom. seat kms per week (millions)*	n/a	n/a
10.03	Airline int'l. seat kms per week (millions)*	22.2	117
10.04	Departures per 1,000 pop.*	2.1	81
10.05	Airport density per million urban pop.*	0.6	105
10.06	No. of operating airlines*	18.0	100
	Ground and Port Infrastructure	**2.8**	**109**
11.01	Quality of roads	2.1	139
11.02	Quality of railroad infrastructure	2.8	60
11.03	Quality of port infrastructure†	2.2	134
11.04	Quality of ground transport network†	4.5	63
11.05	Railroad density (km/surface area)*	3.4	**24**
11.06	Road density (km/surface area)*	®	61
11.07	Paved road density (km/surface area)*	®	**47**
	Tourist Service Infrastructure	**3.3**	**95**
12.01	Hotel rooms per 100 pop.*	0.1	118
12.02	Extension of business trips recommended†	4.1	130
12.03	Presence of major car rental companies†	3	95
12.04	ATMs accepting Visa cards per million pop.*	581.0	52
	Natural Resources	**1.8**	**139**
13.01	No. of World Heritage natural sites*	0	83
13.02	Total known species*	314	127
13.03	Total protected areas (% total territorial area)*	3.8	123
13.04	Natural tourism digital demand (0–100 best)*	2	128
13.05	Quality of the natural environment†	3.6	119
	Cultural Resources and Business Travel	**1.1**	**135**
14.01	No. of World Heritage cultural sites*	1	92
14.02	No. of oral and intangible cultural expressions*	1	60
14.03	No. of large sports stadiums*	0.0	120
14.04	No. of international association meetings*	2.0	123
14.05	Cult./entert. tourism digital demand (0–100 best)*	0	141

Source: World Economic Forum, 2015, accessed at:
http://www3.weforum.org/docs/TT15/WEF_Global_Travel&Tourism_Report_2015.pdf

Annex 6: Forest vegetation of Republic of Moldova



Source: Giurgiu, 2009, accessed at:

http://www.revistapadurilor.ro/(1)Colectia-pe-ani/(2)anul-2009/(22)nr-4-2009/(23)Consideratii-referitoare-la-padurile-si-silvicultura-Republicii-Moldova

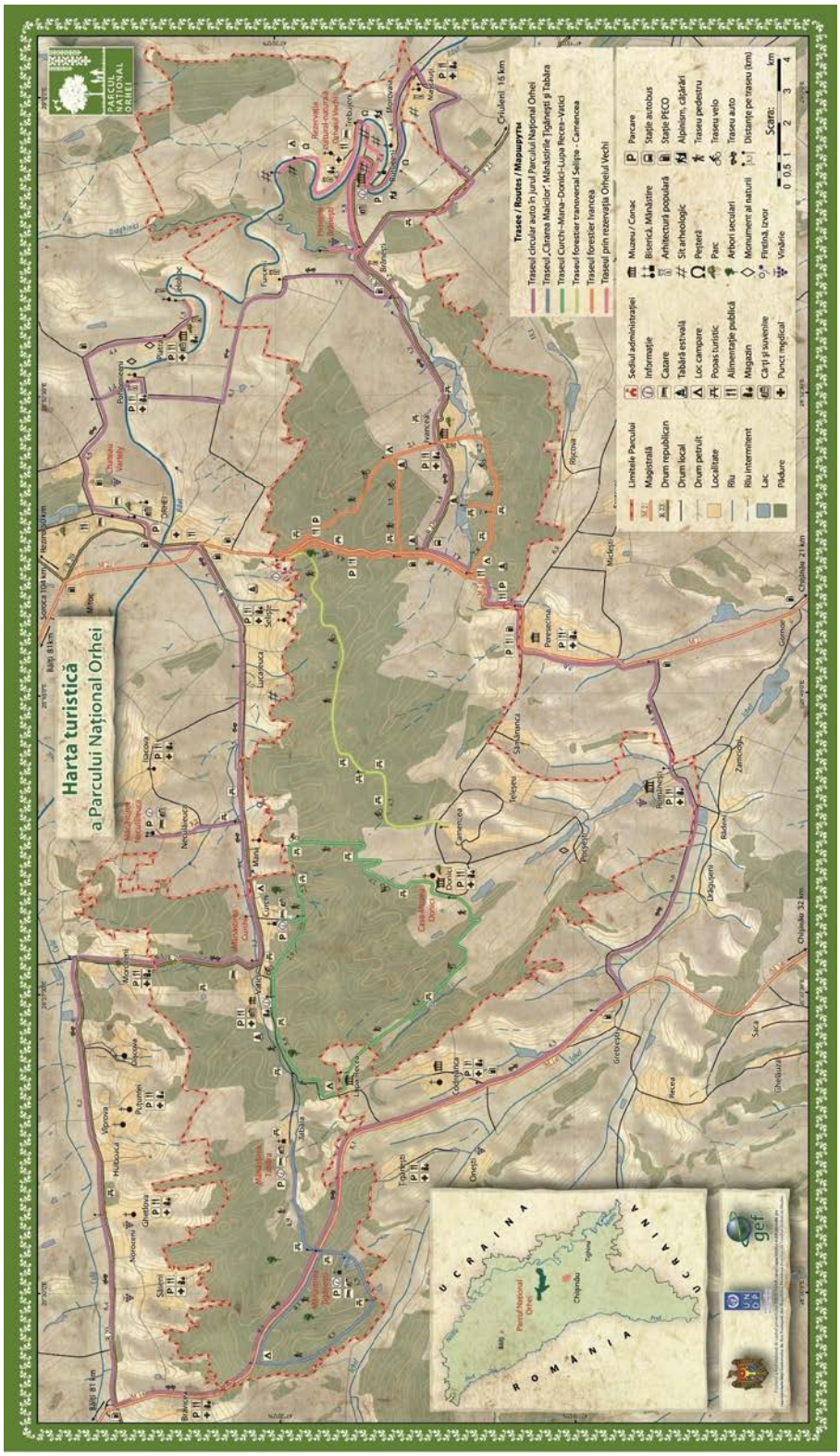
Annex 7: Natural protected areas

The Natural Park "Orhei" is not represented on the illustration.

Source: CIM, 2004, accessed at:

http://cim.mediu.gov.md/raport2004/ro/firstprobl/bd/bd_ro3.htm

Annex 8: Tourist map of National Park "Orhei"



Source: Moldsilva, 2015, accessed at:

http://www.moldsilva.gov.md/pageview.php?l=ro&idc=221&t=/Prietenii-padurii/Turism

Annex 9: Ecological Footprint and biocapacity

In the table are included data (in %), only for countries with populations greater than 1million (data from UN FAO).

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Africa														
Algeria	35,468,000	31	20	9	1	2	37	90	37	53	4	2	5	131
Angola	19,082,000	42	17	12	9	6	14	131	12	54	23	8	2	38
Benin	8,850,000	37	4	21	6	3	28	109	52	4	37	3	4	99
Botswana	2,007,000	14	39	7	1	1	39	60	2	71	18	8	1	25
Burkina Faso	16,469,000	54	11	23	2	6	4	104	63	13	18	0	6	78
Burundi	8,383,000	27	10	55	1	4	3	137	55	33	2	2	9	141
Cote d'Ivoire	19,738,000	36	10	21	17	7	8	133	49	18	28	0	4	64
Cameroon	19,599,000	50	9	17	9	5	10	119	35	5	51	6	3	59
Central African Republic	4,401,000	25	46	20	1	3	5	120	4	7	88	0	0	14
Chad	11,227,000	33	46	16	0	4	0	86	19	43	33	3	2	32
Congo	4,043,000	25	13	35	8	4	16	136	1	29	66	4	0	7
Democratic Republic of Congo	65,966,000	19	2	65	2	6	5	145	4	11	82	2	2	33
Egypt	81,121,000	37	6	9	3	8	36	84	69	0	0	4	28	135
Eritrea	5,254,000	31	40	17	2	6	4	150	8	15	7	67	2	75
Ethiopia	82,950,000	36	11	44	0	6	4	126	58	18	7	7	10	113
Gabon	1,505,000	19	9	48	6	1	17	65	1	14	73	12	0	1
Gambia	1,728,000	50	13	12	5	3	16	93	46	3	17	29	5	84
Ghana	24,392,000	34	5	35	10	4	12	88	55	22	13	4	6	85
Guinea	9,982,000	34	25	29	3	4	6	95	20	32	27	18	2	41
Guinea-Bissau	1,515,000	27	24	41	1	4	4	92	17	12	11	59	2	28
Kenya	40,513,000	24	26	29	4	4	13	134	40	47	3	3	7	133
Lesotho	2,171,000	21	43	34	0	1	0	130	12	86	0	0	2	108
Liberia	3,994,000	16	3	63	1	3	14	123	7	24	56	11	2	42

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Libya	6,355,000	22	16	4	4	1	53	47	23	35	3	36	3	119
Madagascar	20,714,000	27	34	22	6	6	4	127	11	51	30	6	2	39
Malawi	14,901,000	56	5	25	1	7	6	144	68	12	4	9	8	114
Mali	15,370,000	44	37	8	2	5	4	83	36	31	27	2	4	55
Mauritania	3,460,000	16	61	9	0	3	12	71	3	64	1	30	1	18
Mauritius	1,299,000	11	12	3	42	0	32	32	29	0	2	69	0	134
Morocco	31,951,000	45	14	9	3	3	25	105	51	21	11	12	5	107
Mozambique	23,391,000	43	3	35	5	8	7	141	15	46	28	7	3	52
Niger	15,512,000	70	20	4	1	3	2	72	70	24	2	0	3	49
Nigeria	158,423,000	49	8	15	7	4	18	115	72	17	2	2	7	104
Rwanda	10,624,000	52	7	29	1	6	5	140	77	10	2	1	9	127
Senegal	12,434,000	41	20	16	5	4	15	113	36	14	35	12	3	74
Sierra Leone	5,868,000	31	16	34	11	5	4	128	30	33	16	17	5	91
Somalia	9,331,000	12	34	45	2	5	2	124	8	46	18	23	4	80
South Africa	50,133,000	14	8	11	3	1	63	64	25	52	2	18	3	88
Sudan	43,552,000	26	51	14	0	2	6	107	20	52	17	9	2	72
Swaziland	1,186,000	19	32	28	1	4	17	91	29	58	6	1	7	103
Tanzania	44,841,000	35	28	19	6	5	6	121	42	34	12	6	6	94
Togo	6,028,000	40	10	28	6	3	14	132	68	20	5	3	4	115
Tunisia	10,481,000	36	6	12	7	1	37	81	46	11	7	33	3	109
Uganda	33,425,000	33	12	39	9	3	4	114	64	22	2	6	6	110
Zambia	13,089,000	28	17	38	2	5	11	139	11	43	44	1	2	48
Zimbabwe	12,571,000	20	26	22	0	2	30	112	25	50	20	2	3	111
Asia Pacific														
Australia	22,268,000	17	13	16	3	1	51	13	16	41	18	26	0	5
Bangladesh	148,692,000	48	2	11	4	11	24	146	67	1	1	13	18	142
Cambodia	14,138,000	52	0	21	7	5	15	125	54	10	19	12	5	95
China	1,372,148,000	25	6	7	5	5	51	75	47	11	23	7	12	101
India	1,224,614,000	41	0	13	2	6	39	135	78	1	4	6	11	138

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Indonesia	239,871,000	33	4	13	15	5	31	111	38	4	23	30	5	81
Japan	126,536,000	12	4	6	12	1	65	42	16	0	61	13	10	132
North Korea	24,346,000	22	0	10	4	5	58	117	39	0	41	10	9	116
Republic of Korea	48,184,000	15	4	6	8	2	66	31	23	0	11	56	10	118
Laos	6,201,000	43	11	29	2	9	7	116	37	11	43	2	8	66
Malaysia	28,401,000	21	9	11	16	3	40	55	34	1	28	34	3	47
Mongolia	2,756,000	6	66	3	0	1	25	22	1	58	40	1	0	3
Myanmar	47,963,000	54	1	17	17	7	3	79	51	0	28	14	6	53
Nepal	29,959,000	42	6	23	0	11	18	143	63	8	10	1	17	136
New Zealand	4,368,000	22	0	25	0	6	47	51	4	28	47	20	2	9
Pakistan	173,593,000	45	1	12	2	8	32	147	73	1	3	9	14	143
Papua New Guinea	6,858,000	11	6	19	23	6	35	61	12	1	66	16	4	26
Philippines	93,261,000	31	7	8	25	5	24	129	59	3	16	12	10	128
Singapore	5,086,000	7	13	6	4	0	70	7	2	0	1	31	67	152
Sri Lanka	20,860,000	27	6	12	27	5	23	118	64	4	8	10	13	139
Thailand	69,122,000	31	2	7	16	3	41	73	63	1	18	12	6	87
Timor-Leste	1,124,000	45	17	9	6	13	9	152	28	7	59	0	6	106
Viet Nam	87,848,000	37	2	12	9	7	32	98	54	1	15	20	10	93
EU														
Austria	8,394,000	20	7	10	2	4	57	17	23	5	65	0	7	31
Belgium	10,712,000	29	14	8	4	3	43	5	44	3	27	5	20	98
Bulgaria	7,494,000	27	7	11	2	5	47	52	50	3	39	3	5	34
Cyprus	1,104,000	25	6	8	7	1	53	35	51	0	17	19	13	146
Czech Republic	10,493,000	19	4	17	1	3	56	19	39	3	52	0	6	45
Denmark	5,550,000	36	12	14	8	3	27	4	49	0	7	39	5	19
Estonia	1,341,000	16	3	41	3	1	36	20	9	1	43	46	1	13
Finland	5,365,000	17	4	3	7	3	67	15	6	0	74	19	1	6
France	62,787,000	25	9	12	5	4	45	23	52	6	31	5	7	35
Germany	82,302,000	26	6	10	1	4	53	25	48	3	36	4	9	61

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Greece	11,359,000	23	14	7	7	1	48	30	56	10	14	16	4	76
Hungary	9,984,000	26	4	13	1	5	51	58	62	3	29	0	6	51
Ireland	4,470,000	25	7	7	2	2	57	14	15	24	14	44	3	24
Italy	60,551,000	23	10	10	6	1	50	26	52	5	31	6	7	97
Latvia	2,252,000	18	1	37	8	1	35	44	13	4	54	28	1	16
Lithuania	3,324,000	22	3	27	10	2	36	36	34	2	53	8	2	27
Netherlands	16,613,000	25	17	7	3	2	46	12	31	5	8	45	11	102
Poland	38,277,000	25	2	18	3	2	51	37	49	4	38	5	4	60
Portugal	10,676,000	21	8	7	22	1	41	27	21	5	64	6	4	82
Romania	21,486,000	34	5	12	3	6	40	70	40	5	45	4	6	46
Slovakia	5,462,000	16	6	21	1	3	53	45	26	2	68	0	4	43
Slovenia	2,030,000	18	6	12	2	1	61	24	15	3	81	0	1	50
Spain	46,077,000	29	7	8	10	1	45	40	62	7	23	4	4	73
Sweden	9,380,000	14	9	22	3	3	49	10	6	2	66	23	2	11
United Kingdom	62,272,000	17	9	11	3	3	56	28	35	9	9	36	10	79
Latin America														
Argentina	40,412,000	42	19	9	0	4	26	59	41	25	9	23	2	15
Bolivia	9,930,000	18	56	7	0	3	16	68	4	13	83	0	0	2
Brazil	194,946,000	25	32	19	1	4	18	53	11	11	75	2	1	12
Chile	17,114,000	20	16	30	0	4	29	56	10	12	56	19	3	22
Colombia	46,295,000	19	44	8	0	6	23	82	6	32	58	1	3	23
Costa Rica	4,659,000	15	13	27	6	4	36	69	27	21	40	6	6	68
Cuba	11,258,000	28	12	5	2	1	52	94	35	12	31	20	3	112
Dominican Republic	9,927,000	29	10	8	7	3	42	108	41	20	28	3	8	129
Ecuador	14,465,000	21	18	14	4	4	38	80	19	15	54	8	4	57
El Salvador	6,193,000	23	15	21	10	2	28	77	48	19	7	19	7	124
Guatemala	14,389,000	23	13	31	3	3	27	87	39	17	34	4	6	96
Haiti	9,993,000	47	11	19	3	5	16	149	68	13	3	5	10	149

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Honduras	7,601,000	19	18	31	1	4	27	96	18	15	51	12	3	62
Jamaica	2,741,000	19	10	9	7	2	54	76	46	0	28	14	13	144
Mexico	113,423,000	22	11	8	2	2	55	49	35	17	34	10	4	77
Nicaragua	5,788,000	22	17	30	5	3	23	106	17	25	33	22	2	54
Panama	3,517,000	18	23	9	0	1	49	74	7	19	50	23	1	44
Paraguay	6,455,000	26	36	20	0	3	14	41	21	22	56	1	1	8
Peru	29,077,000	34	19	12	0	7	29	103	10	13	68	6	3	20
Trinidad and Tobago	1,341,000	5	6	4	2	0	83	6	3	0	9	87	0	70
Uruguay	3,369,000	11	51	23	1	2	12	16	15	50	12	22	1	10
Venezuela	28,980,000	14	25	4	4	3	49	50	6	20	60	10	3	36
Middle East/ Central Asia														
Afghanistan	31,412,000	41	30	11	0	5	13	148	47	42	4	0	7	140
Armenia	3,092,000	30	19	17	1	2	31	101	35	45	12	3	6	123
Azerbaijan	9,188,000	33	16	5	0	3	42	100	46	31	14	2	7	117
Bahrain	1,262,000	7	10	3	1	2	76	9	2	0	0	79	19	120
Georgia	4,352,000	30	21	9	4	2	33	122	9	33	52	4	3	92
Iran	73,974,000	23	6	3	4	3	62	57	50	8	7	27	8	100
Iraq	31,672,000	23	3	1	1	3	70	102	61	7	16	2	15	147
Israel	7,418,000	20	8	9	3	1	58	34	59	3	12	5	22	148
Jordan	6,187,000	25	22	8	4	5	36	78	44	8	11	1	36	150
Kazakhstan	16,026,000	12	8	2	0	1	77	29	29	60	7	2	1	30
Kuwait	2,737,000	6	5	2	2	1	84	1	6	2	1	62	30	137
Kyrgyzstan	5,334,000	38	20	4	1	5	33	110	33	50	7	4	6	83
Lebanon	4,228,000	21	18	9	2	1	48	46	50	15	18	3	15	145
Occupied Palestinian Territory	4,039,000	36	10	0	4	0	51	151	76	18	4	0	2	151
Oman	2,782,000	14	17	4	6	4	56	21	5	3	0	84	8	56
Qatar	1,759,000	9	15	2	3	1	70	2	1	0	0	92	7	65

Region/country	Population (2010)	Cropland	Grazing land	Forest products	Fishing grounds	Built-up land	Carbon	Global Footprint per capita ranking	Cropland	Grazing land	Forest land	Fishing grounds	Built-up land	Global biocapacity per capita ranking
		2010 Footprint composition (*as percentage of total Footprint*)							2010 biocapacity composition (*as percentage of total biocapacity*)					
Saudi Arabia	27,448,000	18	10	6	3	1	62	33	22	22	11	35	10	130
Syria	20,411,000	36	9	6	2	3	45	97	67	18	7	1	7	125
Tajikistan	6,879,000	57	19	1	0	10	12	142	57	27	1	2	13	122
Turkey	72,752,000	35	4	12	2	2	46	63	50	6	38	3	3	69
Turkmenistan	5,042,000	17	14	0	0	3	65	43	23	68	1	5	3	37
United Arab Emirates	8,264,000	10	8	4	4	0	74	3	14	0	11	75	0	121
Uzbekistan	27,445,000	30	8	4	0	4	53	89	58	23	7	3	9	105
Yemen	24,053,000	34	19	3	3	6	34	138	23	21	7	39	10	126
North America														
Canada	34,017,000	16	7	18	2	3	55	11	17	2	56	24	1	4
United States of America	310,384,000	16	5	10	2	1	67	8	39	7	41	12	2	21
Other Europe														
Albania	3,204,000	43	12	6	1	3	34	85	46	19	24	6	5	89
Belarus	9,595,000	34	0	14	3	2	47	38	38	9	50	1	2	29
Bosnia and Herzegovina	3,760,000	28	9	17	2	1	43	66	22	11	66	0	1	63
Croatia	4,403,000	25	5	16	3	2	49	48	26	7	54	12	2	40
Macedonia TFYR	2,061,000	25	6	10	3	1	54	54	32	9	57	1	2	67
Moldova	3,573,000	44	3	7	5	3	39	99	81	6	8	1	4	90
Russia	142,958,000	15	5	13	4	1	63	39	10	5	67	17	1	17
Serbia	9,856,000	31	1	18	2	3	45	67	66	1	28	0	4	71
Switzerland	7,664,000	13	5	10	3	3	67	18	16	10	62	1	11	86
Ukraine	45,448,000	31	5	6	4	2	51	62	65	6	20	6	3	58

Source: WWF, 2014, accessed at:

http://ba04e385e36eeed47f9c-abbcd57a2a90674a4bcb7fab6c6198d0.r88.cf1.rackcdn.com/Living_Planet_Report_2014.pdf

Annex 10: 2014 Environmental Performance Index Rankings

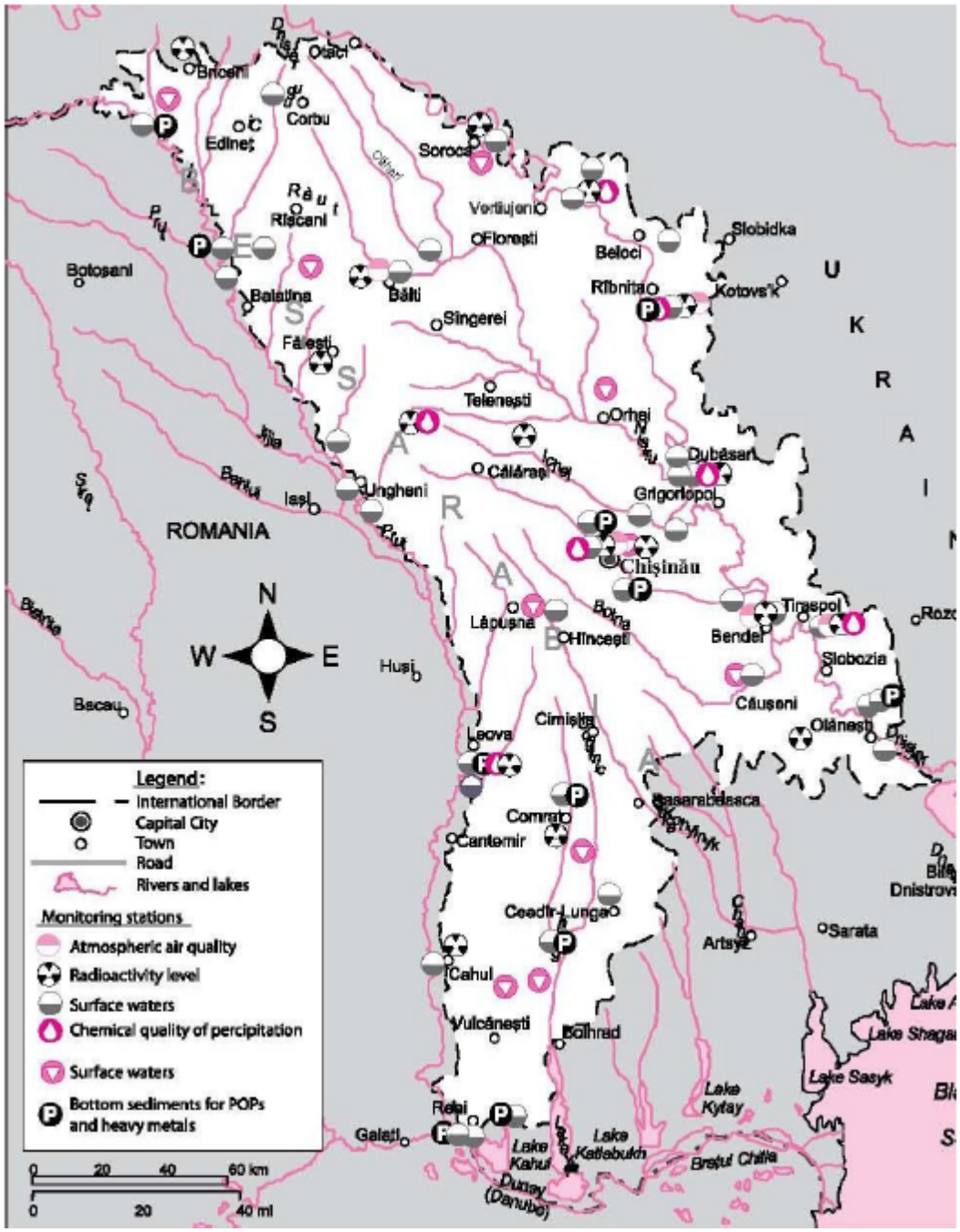
Rank	Country	Score	10-yr.
1.	Switzerland	87.67	+
2.	Luxembourg	83.29	+
3.	Australia	82.40	+
4.	Singapore	81.78	+
5.	Czech Republic	81.47	+
6.	Germany	80.47	+
7.	Spain	79.79	+
8.	Austria	78.32	+
9.	Sweden	78.09	+
10.	Norway	78.04	+
11.	Netherlands	77.75	+
12.	United Kingdom	77.35	+
13.	Denmark	76.92	+
14.	Iceland	76.50	+
15.	Slovenia	76.43	+
16.	New Zealand	76.41	+
17.	Portugal	75.80	+
18.	Finland	75.72	+
19.	Ireland	74.67	+
20.	Estonia	74.66	+
21.	Slovakia	74.45	+
22.	Italy	74.36	+
23.	Greece	73.28	+
24.	Canada	73.14	+
25.	United Arab Emirates	72.91	−
26.	Japan	72.35	+
27.	France	71.05	+
28.	Hungary	70.28	+
29.	Chile	69.93	+
30.	Poland	69.53	+
31.	Serbia	69.13	+
32.	Belarus	67.69	+
33.	United States of America	67.52	+
34.	Malta	67.42	+
35.	Saudi Arabia	66.66	+
36.	Belgium	66.61	+
37.	Brunei Darussalam	66.49	−
38.	Cyprus	66.23	+
39.	Israel	65.78	+
40.	Latvia	64.05	+
41.	Bulgaria	64.01	+
42.	Kuwait	63.94	+
43.	South Korea	63.79	+
44.	Qatar	63.03	−
45.	Croatia	62.23	+
46.	Taiwan	62.18	+
47.	Tonga	61.68	+
48.	Armenia	61.67	+
49.	Lithuania	61.26	+
50.	Egypt	61.11	+
51.	Malaysia	59.31	+
52.	Tunisia	58.99	+
53.	Ecuador	58.54	+
54.	Costa Rica	58.53	+
55.	Jamaica	58.26	+
56.	Mauritius	58.09	+
57.	Venezuela	57.80	+
58.	Panama	56.84	+
59.	Kiribati	55.82	+
60.	Jordan	55.78	−
61.	Seychelles	55.56	+
62.	Montenegro	55.52	+
63.	Azerbaijan	55.47	+
64.	Cuba	55.07	+
65.	Mexico	55.03	+
66.	Turkey	54.91	+
67.	Albania	54.73	+
68.	Syria	54.50	+
69.	Sri Lanka	53.88	+
70.	Uruguay	53.61	+
71.	Suriname	53.57	+
72.	South Africa	53.51	+
73.	Russia	53.45	+
74.	Moldova	53.36	+
75.	Dominican Republic	53.24	+
76.	Fiji	53.08	+
77.	Brazil	52.97	+
78.	Thailand	52.83	+
79.	Trinidad and Tobago	52.28	+
80.	Palau	51.96	+
81.	Morocco	51.89	+
82.	Bahrain	51.83	−
83.	Iran	51.08	+
84.	Kazakhstan	51.07	+
85.	Colombia	50.77	+
86.	Romania	50.52	+
87.	Bolivia	50.48	+
88.	Belize	50.46	+
89.	Macedonia	50.41	+
90.	Nicaragua	50.32	+
91.	Lebanon	50.15	+
92.	Algeria	50.08	+
93.	Argentina	49.55	+
94.	Zimbabwe	49.54	+
95.	Ukraine	49.01	+
96.	Antigua and Barbuda	48.89	+
97.	Honduras	48.87	+
98.	Guatemala	48.06	+
99.	Oman	47.75	+
100.	Botswana	47.60	+
101.	Georgia	47.23	+
102.	Dominica	47.08	+
103.	Bhutan	46.86	+
104.	Gabon	46.60	+
105.	Bahamas	46.58	+
106.	Vanuatu	45.88	+
107.	Bosnia and Herzegovina	45.79	+
108.	Barbados	45.50	+
109.	Turkmenistan	45.07	+
110.	Peru	45.05	+
111.	Mongolia	44.67	+
112.	Indonesia	44.36	+
113.	Cape Verde	44.07	+
114.	Philippines	44.02	+
115.	El Salvador	43.79	+
116.	Namibia	43.71	+
117.	Uzbekistan	43.23	+
118.	China	43.00	+
119.	Central African Republic	42.94	+
120.	Libya	42.72	+
121.	Zambia	41.72	−
122.	Papua New Guinea	41.09	+
123.	Equatorial Guinea	41.06	+
124.	Senegal	40.83	+
125.	Kyrgyzstan	40.63	+
126.	Burkina Faso	40.52	+
127.	Laos	40.37	+
128.	Malawi	40.06	+
129.	Cote d'Ivoire	39.72	+
130.	Congo	39.44	+
131.	Ethiopia	39.43	+
132.	Timor-Leste	39.41	+
133.	Paraguay	39.25	+
134.	Nigeria	39.20	+
135.	Uganda	39.18	+
136.	Viet Nam	38.17	+
137.	Guyana	38.07	+
138.	Swaziland	37.35	+
139.	Nepal	37.00	+
140.	Kenya	36.99	+
141.	Cameroon	36.68	+
142.	Niger	36.28	+
143.	Tanzania	36.19	+
144.	Guinea-Bissau	35.98	+
145.	Cambodia	35.44	+
146.	Rwanda	35.41	+
147.	Grenada	35.24	+
148.	Pakistan	34.58	+
149.	Iraq	33.39	+
150.	Benin	32.42	+
151.	Ghana	32.07	+
152.	Solomon Islands	31.63	+
153.	Comoros	31.39	+
154.	Tajikistan	31.34	+
155.	India	31.23	+
156.	Chad	31.02	+
157.	Yemen	30.16	+
158.	Mozambique	29.97	+
159.	Gambia	29.30	+
160.	Angola	28.69	+
161.	Djibouti	28.52	+
162.	Guinea	28.03	+
163.	Togo	27.91	+
164.	Myanmar	27.44	+
165.	Mauritania	27.19	+
166.	Madagascar	26.70	+
167.	Burundi	25.78	+
168.	Eritrea	25.76	+
169.	Bangladesh	25.61	+
170.	Dem. Rep. Congo	25.01	+
171.	Sudan	24.64	+
172.	Liberia	23.95	+
173.	Sierra Leone	21.74	+
174.	Afghanistan	21.57	+
175.	Lesotho	20.81	+
176.	Haiti	19.01	+
177.	Mali	18.43	+
178.	Somalia	15.47	+

Top 10 Trend Performers Lowest 10 Trend Performers + Country Improvement in Performance − Country Decline in Performance

Source: EPI, 2014, accessed at:

http://epi.yale.edu/files/2014_epi_report.pdf

Annex 11: Main network of environmental quality monitoring stations in the Republic of Moldova



Source: UEA, 2012, accessed at:

http://www.zoinet.org/web/sites/default/files/publications/SEIS/enpi-seis-country-report_republic_of_moldova-final.pdf